



ARIZONA DEPARTMENT
OF HEALTH SERVICES

Sexually Transmitted Diseases

2015 Annual Report



*Office of Disease Integration and Services
STD Control Program
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Phoenix, AZ 85007*



ARIZONA DEPARTMENT OF HEALTH SERVICES

PREPAREDNESS

November 2016

Dear Arizonans:

The Arizona Department of Health Services (ADHS), Sexually Transmitted Disease Control Program (STDCP) is pleased to provide the 2015 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 2015 data are from the ADHS STDCP surveillance system, PRISM (Patient Reporting Investigation Surveillance Manager).

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 2015, 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

Douglas A. Ducey | Governor Cara M. Christ, MD, MS | Director

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Melanie Taylor, MD, MPH, CDC Medical Epidemiologist

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.

Staff and Contributors

Roxanne Ereth, MPH, BS, STDCP Manager with 18 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.

Patrick Hindman, MPH, BSN, RN, Chlamydia/Gonorrhea Surveillance Epidemiologist, has nearly two years 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, Senior Surveillance Epidemiologist and Data Manager, has a year of experience working in HIV prevention and surveillance in South India and over a year as an STD Surveillance Epidemiologist and Data Manager. Mr. Kreisberg holds an MPH in Epidemiology and a BS in Optical Sciences and Engineering.

Tymeckia Kendall, MPH, Syphilis Surveillance Epidemiologist, has just over 3 months of experience with the STD team. Ms. Kendall has previous experience with the Georgia Department of Public Health working with HIV/AIDS surveillance data and aiding in multiple HIV studies.

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.

Letty Medina, Program and Project Specialist, has been with ADHS for nearly 4 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:

Geri Toyekoyah, MPH, BA, CDC Public Health Advisor with 24 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.

Katherine Browne, BA, CDC Public Health Advisor with 25 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.

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.

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, 2015 CDC Surveillance Report, and the CDC website, www.cdc.gov.

Organizational Structure

The STDCP has been a part of the Arizona Department Health Services since 1919. This Program is under the ADHS Division of Public Health Preparedness, 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 CDC field staff located in Maricopa and Pima Counties.

Executive Summary

Arizona is comprised of fifteen counties and is home to twenty-one federally recognized American Indian Tribes. The STDCP conducts and is responsible for surveillance, data analysis, and program evaluation of STD activities in Arizona. The STDCP 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 assistance can be offered to local health departments (LHDs) or Tribes that are affected. In addition, the STDCP 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, although there is still much work to be done. Our state now ranks 7th in the nation for its high congenital syphilis rates. Due to this, in accordance with Arizona statute, [36-693](#), a physician, or any other person permitted by law, who is attending to the care of pregnant women must provide for syphilis testing at the mother's first prenatal visit. Additionally, 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 for their mothers, at the time of delivery. If an infant is stillborn, a blood sample of the umbilical cord should be done to identify congenital syphilis cases.

Although there are multiple STDs, Arizona requires reporting for only five: syphilis, gonorrhea, chlamydia, herpes genitalis (provider only), and chancroid. This 2015 Annual Arizona STD Surveillance Report provides descriptive data for chlamydia, gonorrhea and syphilis infections, the most commonly reported STDs.

In 2015, a total of 42,281 cases of STDs were reported in Arizona. The majority of the cases were reported from Maricopa (65.9%), Pima (15.7%), Pinal (4.0%) and Yuma (3.0%) counties. Of the total 42,281 total cases, 4,003 (9.46%) were investigated cases and of those, 1,985 (49.6%) were identified in men who have sex with men (MSM).

- [789 \(2.4%\) of all chlamydia cases were male and identified as MSM \(Figure SF3\).](#)
- [1,149 \(14%\) of all gonorrhea cases were male and identified as MSM \(Figure SF3\).](#)
- [543 \(92.0%\) primary and secondary syphilis cases were male and 436 identified as MSM \(Figure SF3\).](#)
- [78.0% of all STD cases were among young adults 15-29 years of age \(Appendix Tables\).](#)
- [14 congenital syphilis cases were reported \(Figure SF1\).](#)
- [The number of reported gonorrhea infections has continued to increase drastically, with case counts up 81% since 2011 \(Figure GC1\).](#)

Table 1: Sexually Transmitted Diseases: Cases and Rates per 100,000 Population by County, Arizona, 2015

County	Primary and Secondary		Congenital Syphilis		Gonorrhea		Chlamydia	
	Cases	Rates	Cases	Rates	Cases	Rates	Cases	Rates
Apache	*	*	*	*	53	73.8	534	743.4
Cochise	*	*	*	*	81	63.6	480	376.6
Coconino	6	4.4	*	*	127	92.2	970	704.5
Gila	*	*	*	*	20	37.7	169	318.2
Graham	0	0.0	*	*	17	44.8	148	389.9
Greenlee	0	0.0	*	*	0	0.0	32	342.4
La Paz	0	0.0	*	*	15	74.1	60	296.6
Maricopa	447	10.9	12	21.7	6,213	152.0	20,583	503.6
Mohave	*	*	*	*	111	54.6	412	202.6
Navajo	*	*	*	*	144	133.2	722	667.9
Pima	111	11.1	*	*	891	88.7	5,492	546.7
Pinal	7	1.7	*	*	304	75.6	1,312	326.4
Santa Cruz	*	*	*	*	22	47.1	161	344.8
Yavapai	*	*	*	*	35	16.0	438	200.1
Yuma	*	*	*	*	237	116.6	997	490.5
Unknown	0	0.0	0	0.0	0	0.0	0	0.0
Arizona	590	9.0	14	16.2	8,270	126.7	32,511	498.0

*Case counts under 6 are excluded. Associated rates may also be excluded.

*Additional cells may be excluded to prevent extrapolating counts

*Congenital syphilis rates calculated using 2014 live births as denominator

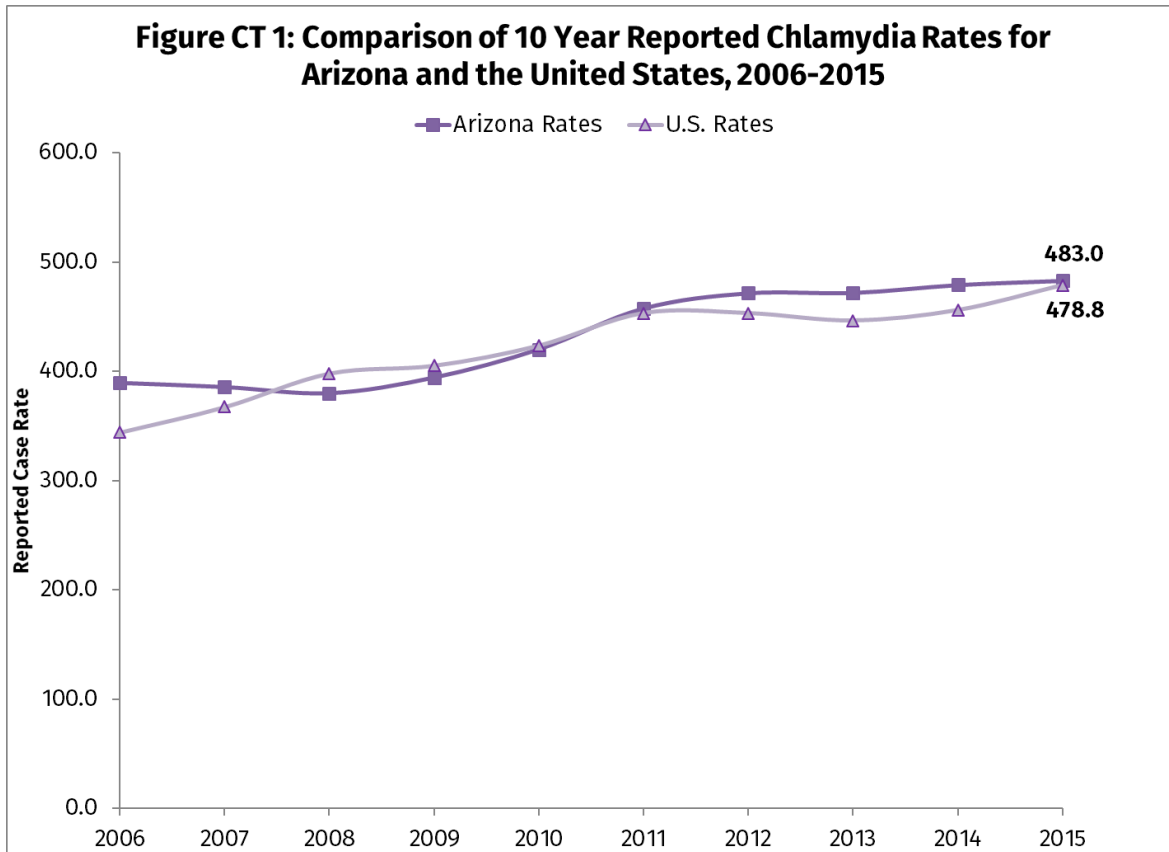
STDs in Arizona

Chlamydia

Chlamydia 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 STD[1]. In 2015, there were over 1.5 million chlamydia infections reported nationwide; however, the CDC estimates that 2.86 million infections occur annually. Reported infections are dwarfed by the estimated number of infections due to the large number of asymptomatic cases that are not detected and, consequently, not reported. Numerous studies have demonstrated that a large proportion of chlamydia infections go undetected because universal screening is not done to detect asymptomatic cases [2].

The prevalence of asymptomatic cases conceals the serious nature of untreated chlamydia infections. 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 States[3]. Pregnant women can pass chlamydia infections to newborns during the birth process, causing ocular infections that can cause blindness and/or pneumonia when left untreated. Untreated chlamydia infection can also cause inflammation of the testes and prostate among males, and the anus/rectum of both sexes.

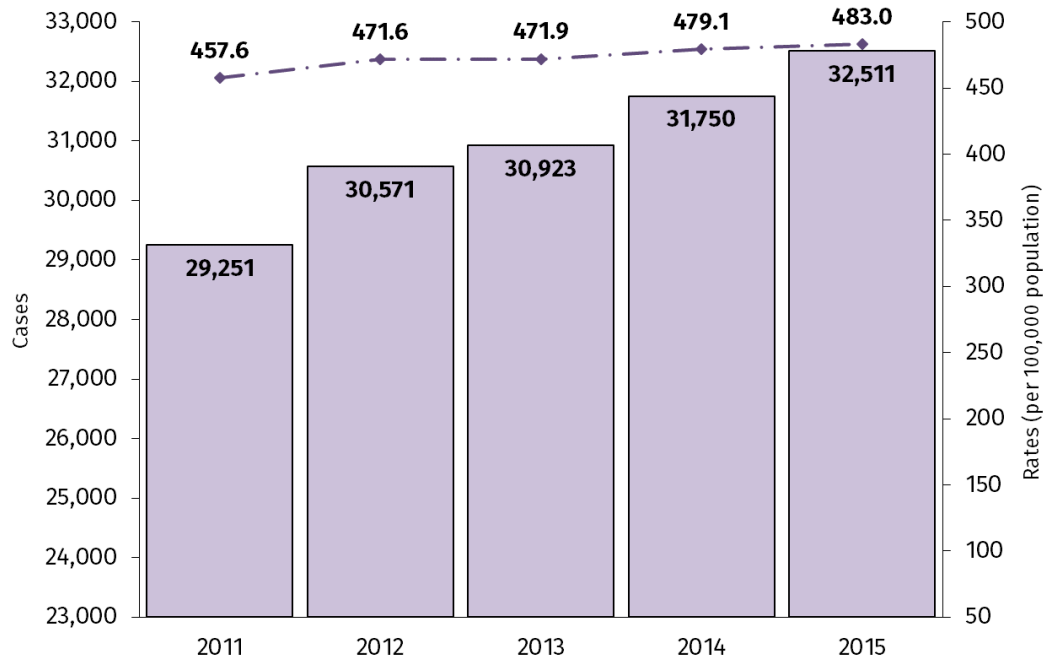
Sexually active young people, aged 15-24, are at the greatest risk of acquiring chlamydia and of developing the severe consequences mentioned above. Thus, CDC recommends annual screening for all sexually active women younger than 25, as well as older women with risk factors such as new or multiple partners, or a sex partner who has an STD. Routine screening is not recommended for men unless they are at high risk.



10 Year Trend of Chlamydia Rates:

- In 2015, Arizona's case rate for chlamydia was 483.0 per 100,000, which exceeded the U.S. case rate of 478.8 per 100,000 by 1.0% (Figure CT 1).
- The U.S. rate increased 6% from 2014-2015, while the rate in Arizona increased 1%.
- Arizona ranked 18th in case rates nationally, making up 2% of the 1,526,658 cases reported nationwide in 2015. [1]

**Figure CT 2: Chlamydia Cases and Case Rates,
Arizona 2011-2015**

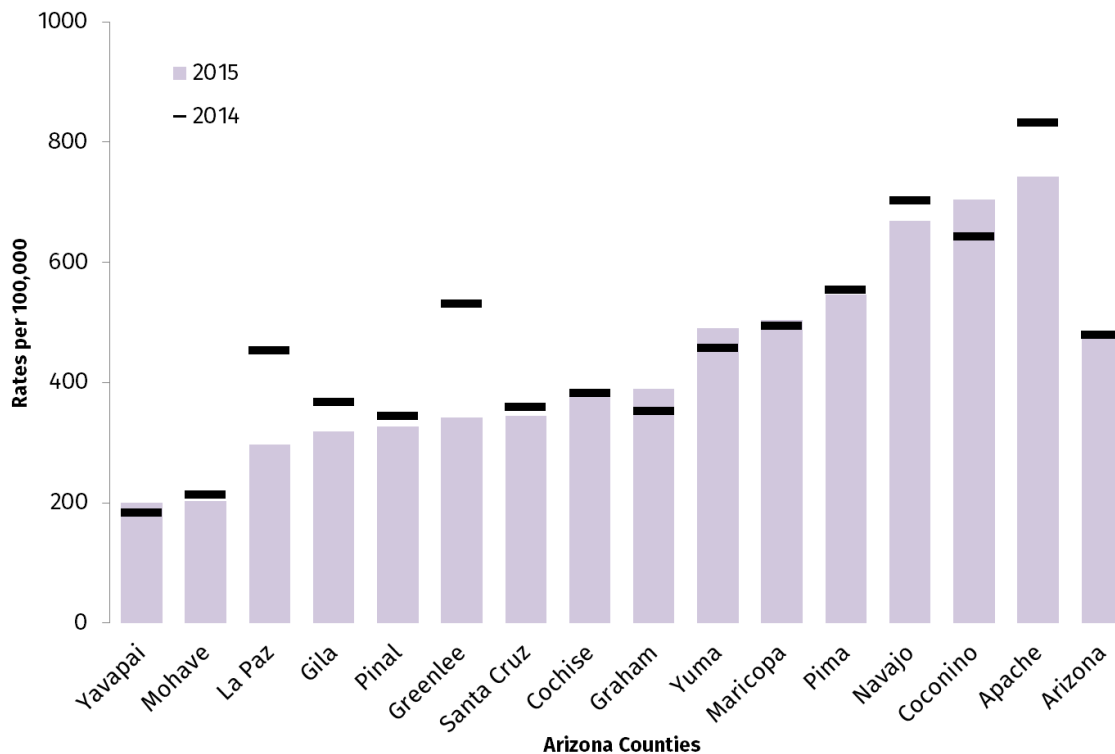


Data is provisional and subject to change.

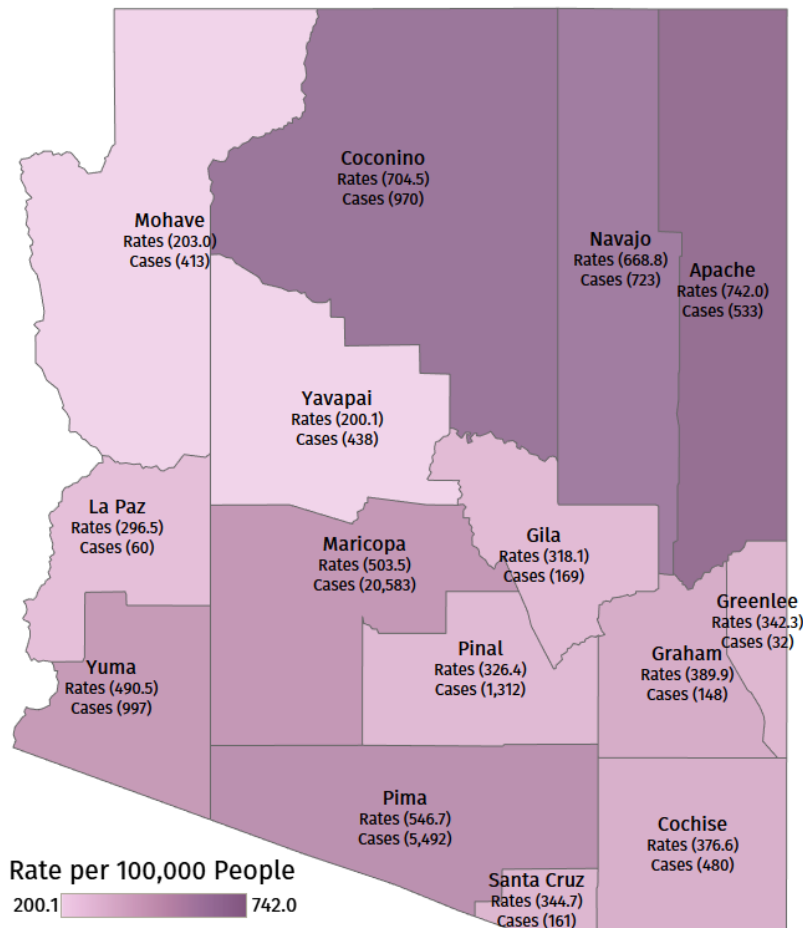
* 2014 CDC bridged data used for 2015 case rate population denominators.

Statewide Chlamydia Disease Burden:

- In 2015, 32,511 cases of chlamydia were reported in Arizona, an increase of 761 (2%) cases from 2014 (Figure CT 2).
- The reported case rate for Arizona was 483.0 per 100,000 persons in 2015, an increase of 1% from 2014.
- Over the last 5 years, the case rate for chlamydia has increased 6% from 457.6 per 100,000 in 2011 to 483.0 per 100,000 in 2015.
- The increase in case rates of previous years has slowed considerably; however, with so many new infections being diagnosed, Arizona is far from ending this epidemic.

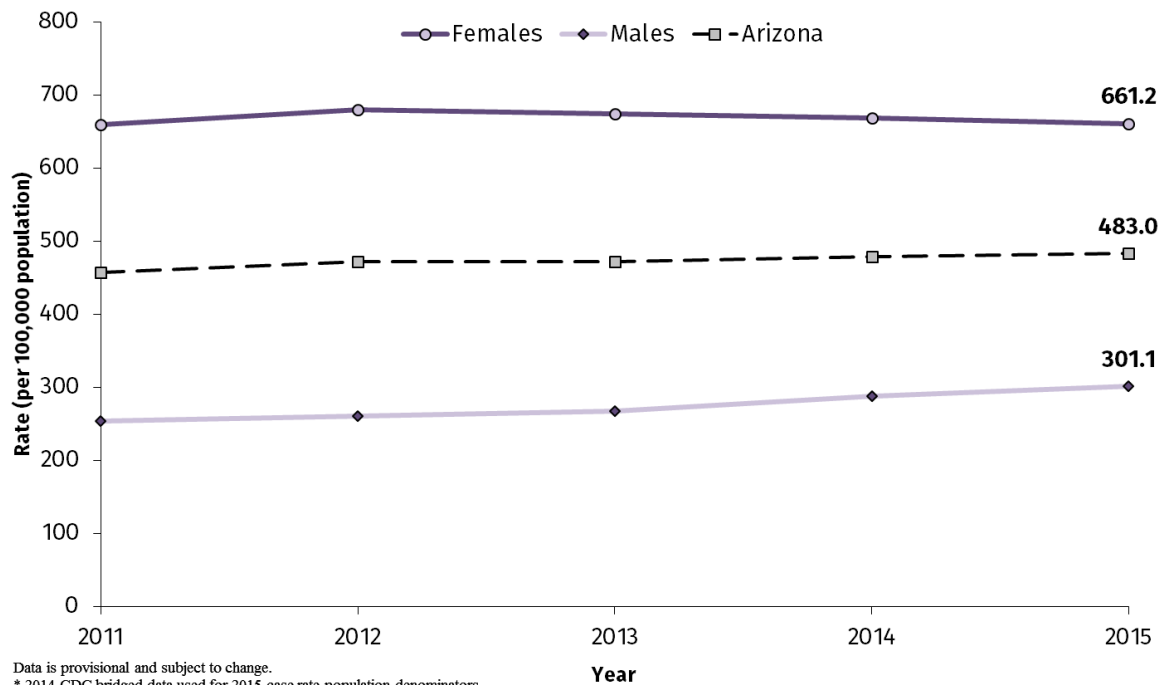
Figure CT 3: Chlamydia Rates by County, Arizona 2014/2015**Chlamydia Rates by County:**

- Between 2014 and 2015, 5 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, Coconino and Apache counties had the highest case rates at 704.5 and 742.1 per 100,000, respectively (Figure CT 4).
- Apache County reported the highest case rate in 2015 at 742.0 per 100,000 (Figure CT 4); however, compared to 2014, the case rate decreased 11%.
- Between 2014 and 2015, the case count and rate in Graham County increased 12% and 11%, respectively; the largest increases observed in the State.

Figure CT 4: Chlamydia Rates and Cases by County, Arizona 2015**Chlamydia 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 Coconino counties represent the highest case rates across the state at 742.0 per 100,000 and 704.5 per 100,000, respectively, the case counts in these counties only represent 1.6% and 3.0% of the total cases.
- Arizona's two largest counties, Maricopa and Pima, account for 63.3% and 16.9% of the total cases, respectively, which is roughly 80% combined.

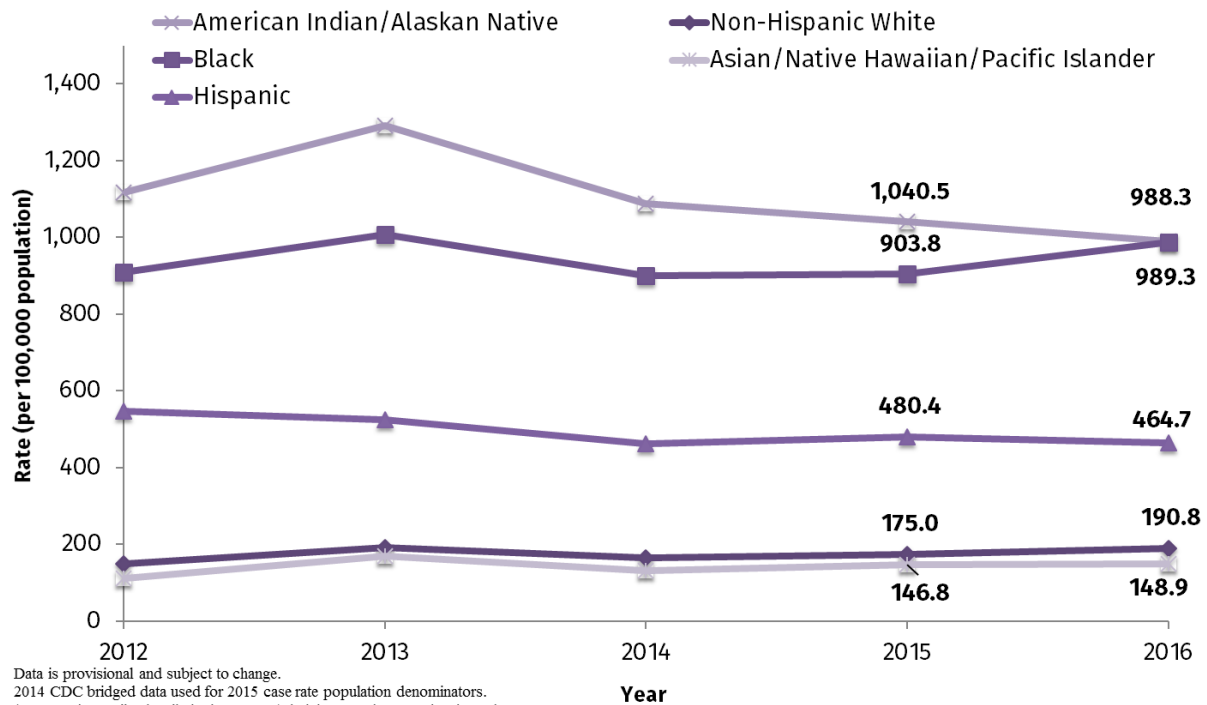
Figure CT 5: Chlamydia Case Rates by Gender, Arizona 2011-2015



Chlamydia Rates by Gender:

- Similar to nationwide trends, Arizona females are disproportionately affected by chlamydia (Figure CT 5).
- The female case rate in Arizona has decreased for the third straight year; by 3% since 2012.
- The male case rate has increased by 5% from 2014 to 2015.
- During the last 5 years, the male case rate has increased by 19%, while the female case rate has increased by 6%.
- Screening activities for women 15 – 24 years of age continue to be a priority for the STDCP, which collaborates with Title X, Title V, selected correctional facilities, and other safety net clinics.

Figure CT 6: Chlamydia Case Rates by Race/Ethnicity*, Arizona 2012-2016



Chlamydia 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 2015, the AI/AN rate was the highest reported rate at 1,040.5 per 100,000. This is a 4% decrease from 2014. This is the second straight year that the AI/AN rate has decreased and represents the lowest rate among AI/AN observed in the last 5 years.
- In 2015, the rate of chlamydia among Blacks was the second highest reported rate at 903.8 per 100,000, a 0.5% increase from 2014.
- Although the Hispanic population had the 3rd highest rate of chlamydia at 480.4 per 100,000, this population had the highest count of cases at 9,880, an increase of 598 from 2014.

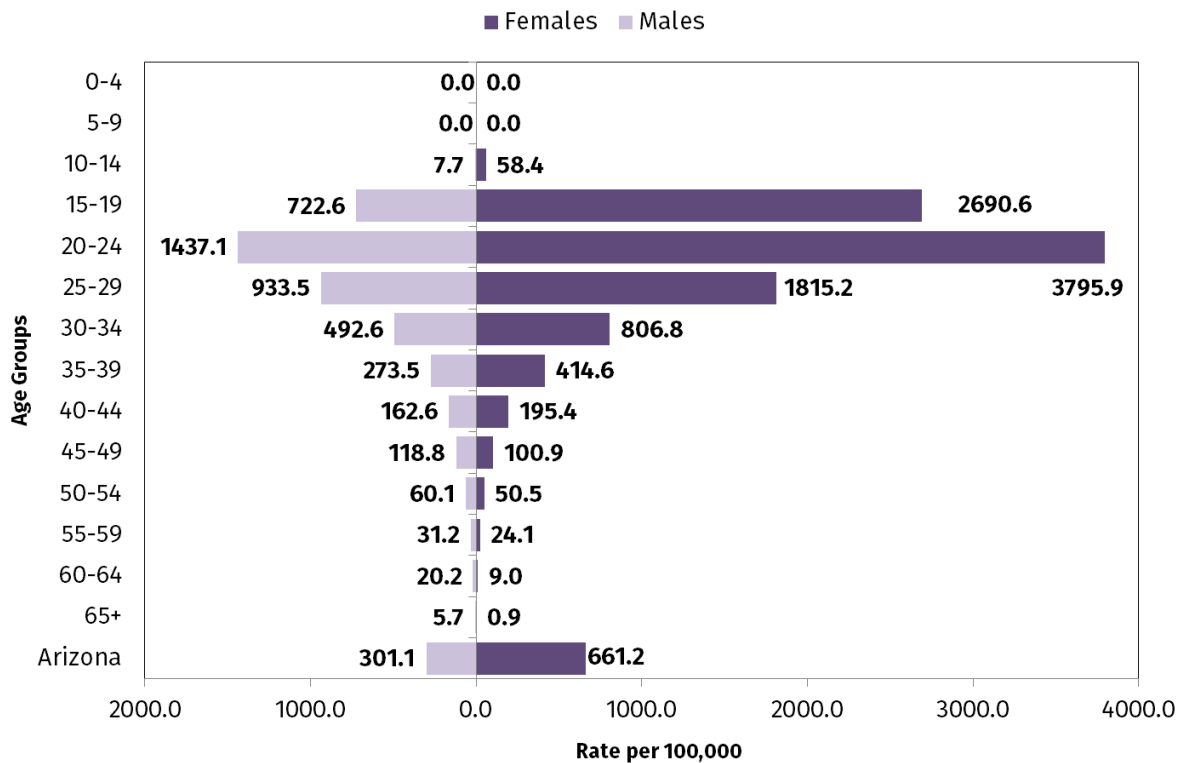
Age group	2013		2014		2015	
	N	Rate	N	Rate	N	Rate
10-14	162	35.7	167	36.6	149	32.6
15-19	7,737	1727.7	7,482	1,659.6	7,645	1,681.5
20-24	12,231	2578.0	12,332	2,544.3	12,612	2,578.7
25-29	5,456	1229.1	5,950	1,348.1	6,152	1,360.6
30-34	2,713	625.2	2,880	653.8	2,882	646.8
35-39	1,189	293.2	1,388	339.7	1,427	343.8
40-44	690	164.0	740	175.7	755	179.1
45-49	384	93.2	378	92.9	448	110.1
50-54	205	48.0	214	49.9	239	55.2
55-59	88	22.2	128	31.5	114	27.5
60-64	34	9.2	46	12.4	54	14.2
65+	30	3.1	42	4.1	34	3.2
Total	30,923	471.9	31,750	479.1	32,511	483.0
Percent under 25	65%		63%		63%	
Percent under 30	83%		82%		82%	

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

Chlamydia Rates by Age:

- Adolescents and young adults in Arizona continue to be disproportionately affected by chlamydia (Table CT 1).
- The rate among individuals aged 20-24 remains the highest at 2,578.7 per 100,000, a 1% increase from 2014.
- The second highest rate is observed among those aged 15-19 at 1,681.5 per 100,000, a 1% increase from 2014.
- In 2015, 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.

Figure CT 7: Chlamydia Rates by Age group and Gender, Arizona 2015



Chlamydia Rates by Age Group and Gender:

- Females continue to bear the burden of disease, especially those aged 15-24 (Figure CT 7).
- 2015 is the second year the rate for females aged 20-24 has slightly decreased; however, it is still the highest rate observed among female age groups at 3,795.9 per 100,000. This rate is approximately 5.7 times that observed among all age groups of females.
- The case rate for males aged 20-24 is also the highest among males, but is less than half the rate of the females in the same age category.
- Between 2014 and 2015, the overall female case rate decreased by 1%, while the male case rate increased by 5%.

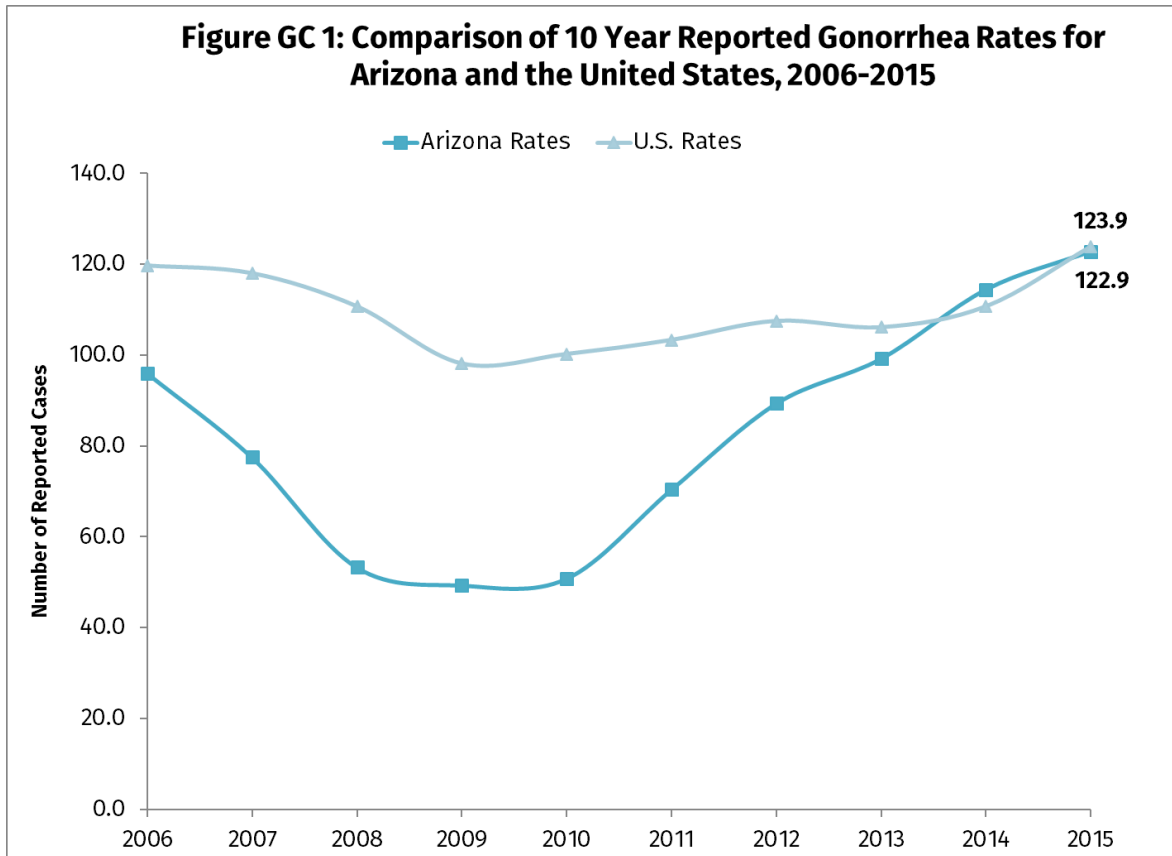
Gonorrhea

Gonorrhea is caused by the bacterium *Neisseria gonorrhoeae*. It is the second most commonly reported infectious disease in the United States and in Arizona. Gonorrhea infections often go undetected as many men and women do not have symptoms. For this reason, they are commonly not tested. In 2015, there were 395,216 cases of gonorrhea reported nationally; however, CDC estimates that there were actually 820,000 infections. Thus, only 48% of the infections were detected in 2015 [1].

Untreated gonorrhea infection may lead to serious, irreversible complications such as infertility in men and women, pelvic inflammatory disease (PID), premature delivery, and neonatal blindness in infants born to infected women. Untreated and repeat gonorrhea infections have also been linked to increased risk of transmission of HIV [4].

Gonorrhea screening recommendations include at least annual screening for the following at risk groups: sexually active women under 25 years of age, sexually active women aged 25 years and older if at increased risk (e.g., known exposure, multiple or new partners), all pregnant women under 25 years of age, and sexually active MSM at sites of contact. All persons with multiple and/or anonymous sex partners should be tested more frequently. Persons with HIV should also be tested at least once per year.

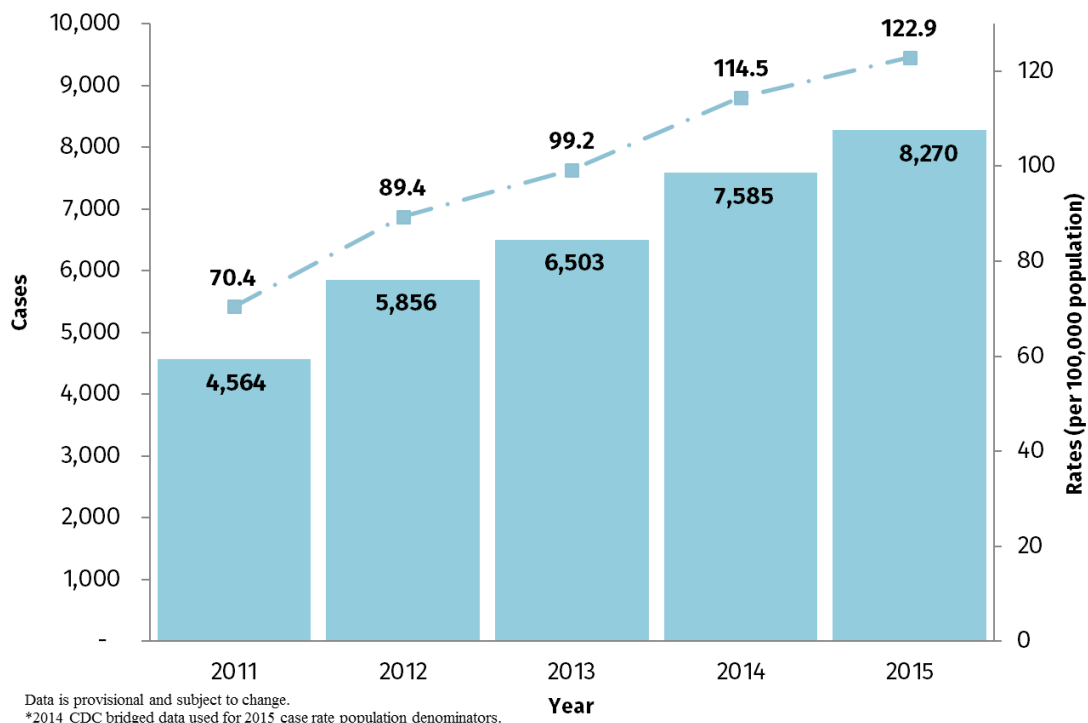
Significant efforts have been made to encourage the routine documentation of a sexual health history into screening practices to ensure that all potential sites of infection (pharyngeal, anal, and urethral/cervical) are tested [5] [6] [7]. Many studies have indicated that a significant proportion of gonorrhea infections would remain undetected if clinicians relied solely on genital-based testing.



10 Year Trend of Gonorrhea Rates:

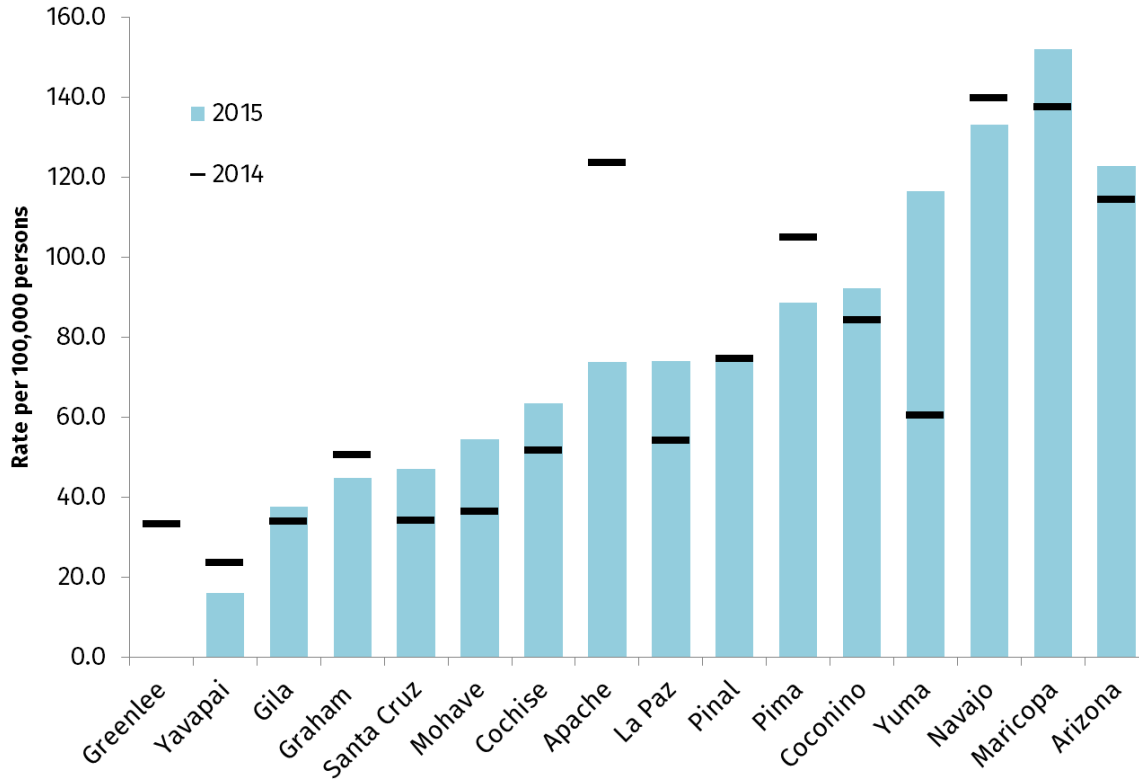
- When compared to national reported gonorrhea rates from 2006 to 2013, Arizona rates have traditionally been lower than the national rates. From 2010 to 2015, however, the increases observed in Arizona have been drastically steeper than nationwide (Figure GC 1).
- In 2015, Arizona's case rate for gonorrhea was 122.9 per 100,000, which was slightly less than the U.S. case rate of 123.9 per 100,000.
- From 2014 to 2015, the U.S. case rate increased 12%, while the case rate in Arizona only increased 7%.
- Arizona ranked 20th in case rates nationally, making up 2% of the 395,216 cases reported nationwide in 2015.

Figure GC 2: Gonorrhea Cases and Rates, Arizona 2011-2015

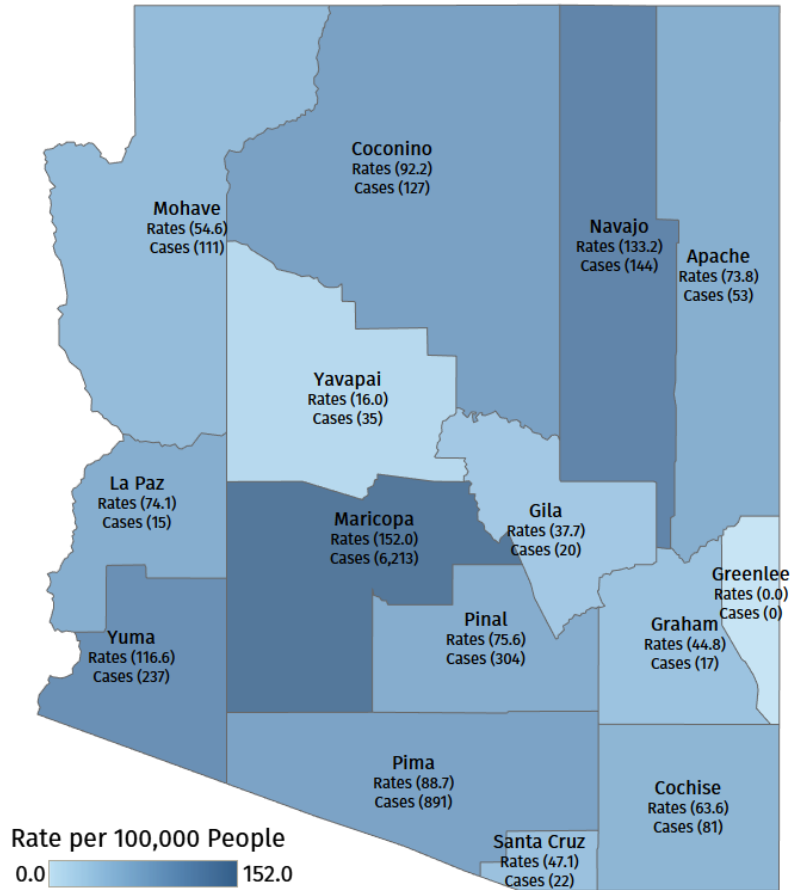


Statewide Gonorrhea Disease Burden:

- In 2015, 8,270 cases of gonorrhea were reported in Arizona, an increase of 685 (9%) cases from 2014 (Figure GC 2).
- The reported case rate for Arizona was 122.9 per 100,000 persons in 2015, an increase of 7% from 2014.
- The number of reported infections has continued to increase drastically, with case counts up 81% since 2011.
- There has been a 24% increase in overall case rates observed from 2013-2015 (99.2 per 100,000 in 2013 and 122.9 per 100,000 in 2015).

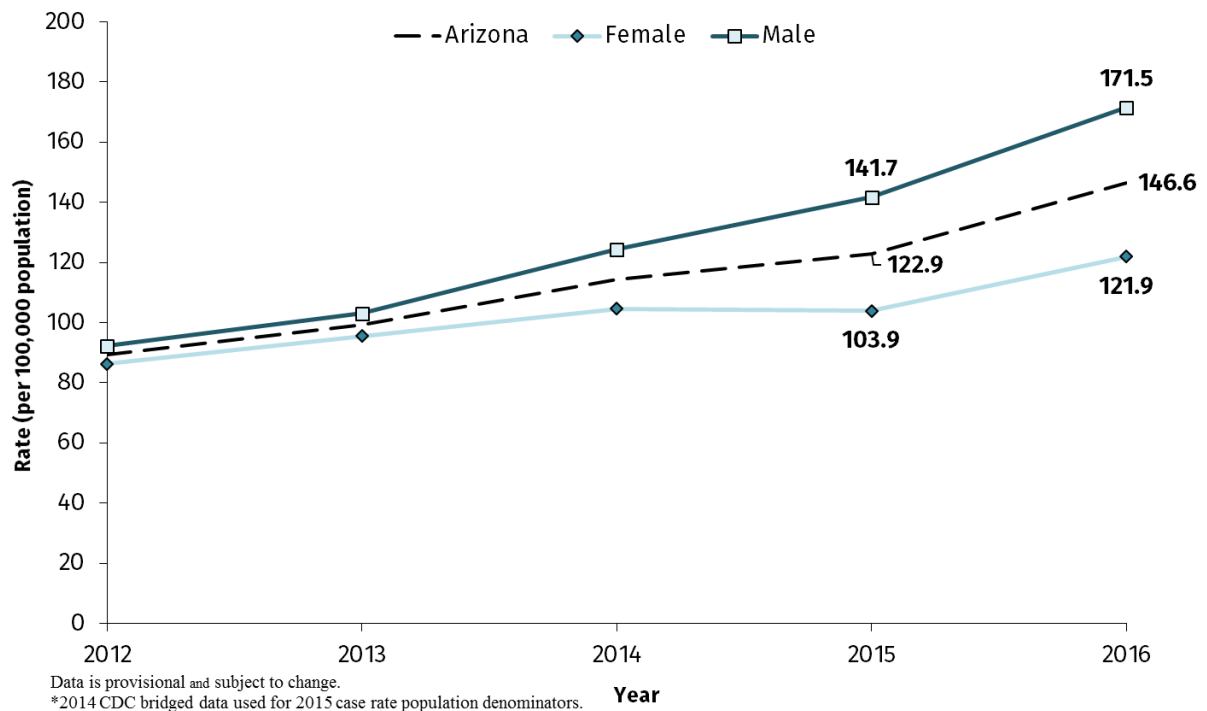
Figure GC 3: Gonorrhea Rates by County, Arizona 2014/2015**Gonorrhea Rates by County:**

- Maricopa County ranked 5th among counties/independent cities in the U.S. for gonorrhea cases in 2015, which underscores the impact this county has on statewide and nationwide trends (Figure GC 3) [1].
- Nine of the 15 (60%) Arizona counties recorded an increase in case rates from 2014 to 2015.
- Yuma County recorded the highest increase in case rates from 2014 to 2015; an increase of 92%.
- Apache County recorded the greatest decrease in case rates from 2014 to 2015; a decrease of 40%.

Figure GC 4: Gonorrhea Rates and Cases by County, Arizona 2015**Gonorrhea Case Rates and Counts by County:**

- Significant differences in case counts and rates have been observed among the counties (Figure GC 4).
- Reported gonorrhea infections match Arizona's population distribution. Nearly 86% of cases reported in Maricopa and Pima counties comprise 76% of the State's population.
- Maricopa County has the highest number of total cases with 6,213 and has the highest case rate at 152.0 per 100,000.

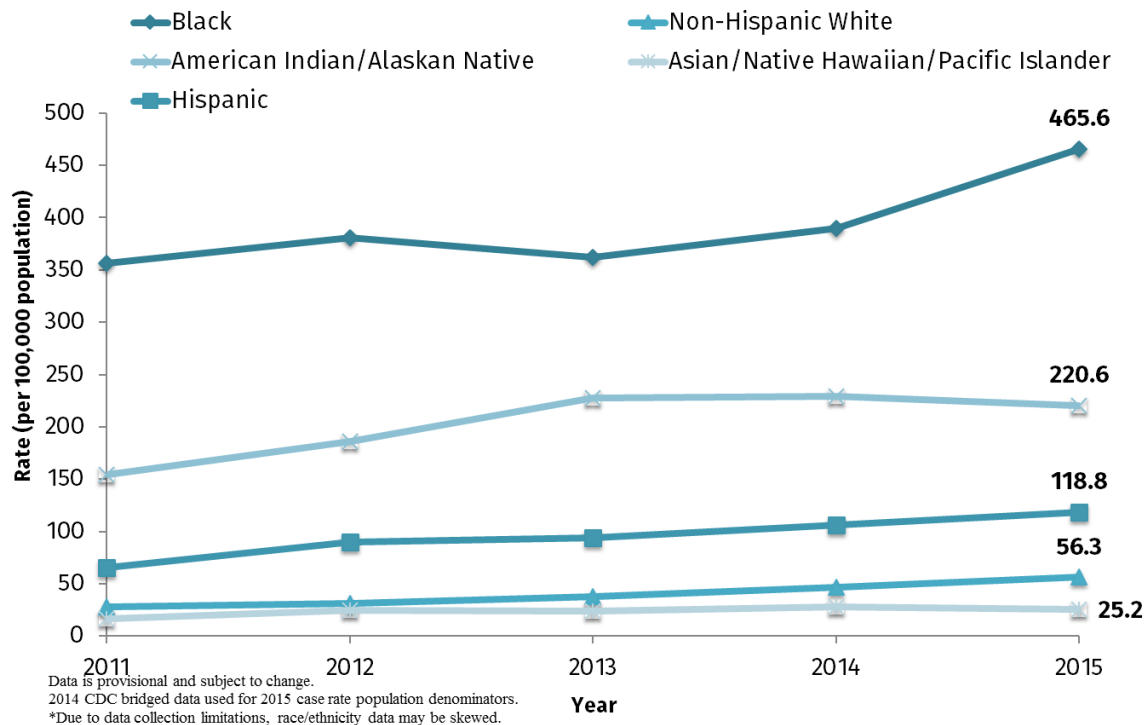
Figure GC 5: Gonorrhea Case Rates per 100,000 Population by Gender, Arizona 2012-2016



Gonorrhea Rates by Gender:

- Nationally, as well as in Arizona, males continue to bear the burden of disease when compared to females (Figure GC 5).
- In Arizona, the case rate for the male population was 141.7 per 100,000 in 2015, an increase of 14% from 2014.
- The case rate for the female population was 103.9 per 100,000 in 2015, a decrease of 1% from 2014.
- The gap observed between males and females continues to widen in 2015, and is the largest gender-based gap we have seen in the last 5 years. The male case rate was 36% higher than the female case rate in 2015.
- Over the last 5 years, the case rate among males has increased 94%, while the case rate among females has increased 53%.

Figure GC 6: Gonorrhea Case Rates by Race/Ethnicity*, Arizona 2011-2015



Gonorrhea Rates by Race/Ethnicity:

- Racial/ethnic differences in reported case rates are also indicative of a disease burden disparity in Arizona (Figure GC 6). Extremely high case rates were observed among Blacks and AI/AN with rates of 462.3 and 219.2 cases per 100,000 persons, respectively.
- The Black population recorded the highest increase in case rates from 2014 to 2015; an increase of 19%.
- Although the AI/AN population has the second highest case rate, a decrease of 4% was observed from 2014 to 2015.
- Hispanics represent the majority of infections. This population also experienced a significant increase (11%) in case rates from 2014 to 2015.

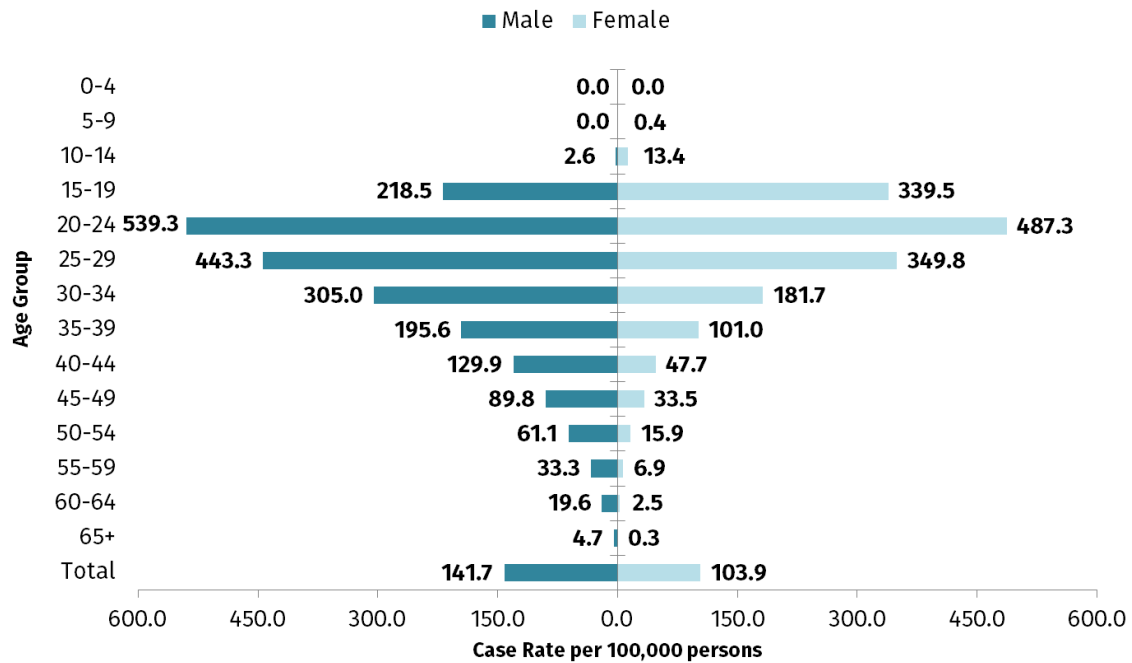
Age Group	2013		2014		2015	
	Number	Rate	Number	Rate	Number	Rate
10 – 14	30	6.6	21	4.6	36	7.9
15 – 19	1,116	249.2	1,182	262.2	1,264	278.0
20 – 24	2,146	452.3	2,361	487.1	2,517	514.6
25 – 29	1,239	279.1	1,589	360.0	1,805	399.2
30 – 34	747	172.1	980	222.5	1,091	244.8
35 – 39	447	110.2	552	135.1	618	148.9
40 – 44	297	70.6	352	83.6	376	89.2
45 – 49	209	50.7	260	63.9	251	61.7
50 – 54	145	34.0	148	34.5	165	38.1
55 – 59	66	16.6	68	16.8	81	19.5
60 – 64	37	10.1	39	10.5	40	10.5
65 and older	16	1.6	32	3.1	25	2.3
Total	6,495	99.2	7,584	114.5	8,269	122.9
Percentage 15 - 29	69%	-	68%	-	68%	-
Percentage 30 - 49	26%	-	28%	-	28%	-

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

Gonorrhea Rates by Age:

- Age-based disparities occur with gonorrhea in Arizona (Table GC 1). Infections and infection rates remain highest among individuals aged 15-29, representing 67.5% of all Arizona cases in 2015.
- The largest case rate is among those aged 20-24, at 514.6 per 100,000.
- Age groups 30-34 and 35-39 continue to increase steadily at approximately 10% for each age group.
- Rates in nine of the twelve (75%) age groups increased from 2014 to 2015.

Figure GC 7: Gonorrhea Rates by Age Group and Gender, Arizona 2015



Gonorrhea Rates by Age Group and Gender:

- The case rate among males in Arizona in 2015 was 141.7 per 100,000. This is a 17% increase from 2014 (Figure GC 7).
- The case rate among females in Arizona in 2015 was 103.9 per 100,000. This is a 1% decrease from 2014 and approximately 27% less than the male rate.
- The highest case rate recorded in 2015 was among males 20-24, with a case rate of 539.3 per 100,000, which is approximately 11% greater than the female rate among the same age group.

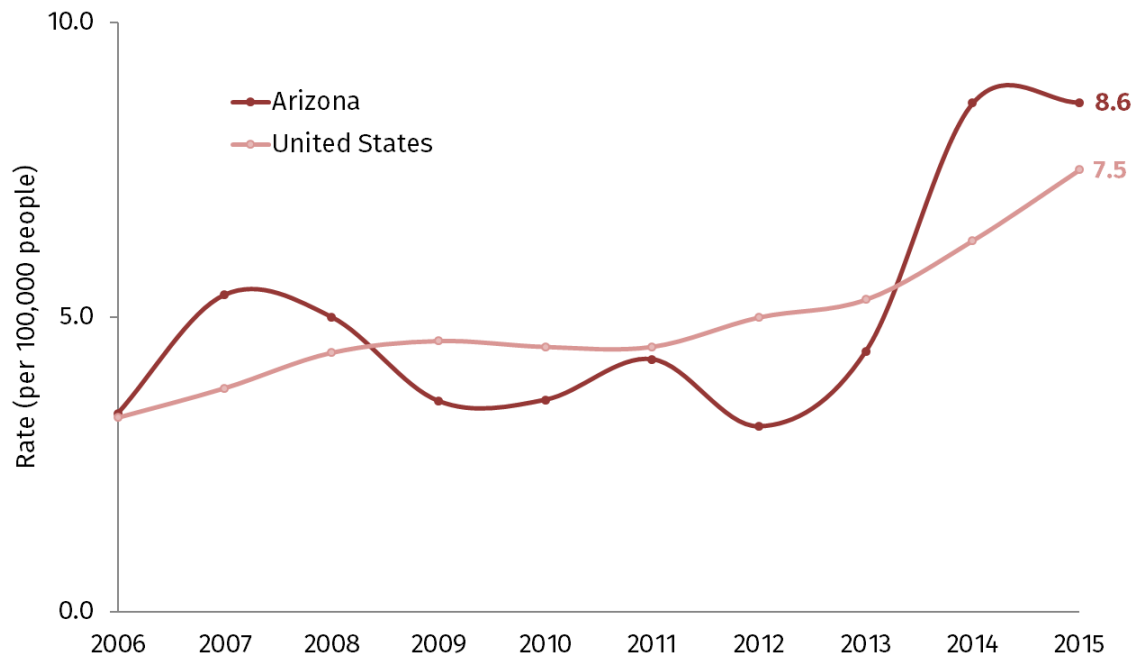
Primary and Secondary Syphilis

Syphilis is a sexually transmitted infection caused by the bacterium, *Treponema pallidum*. In 2015, there were 74,702 cases of syphilis reported to CDC nationally. Of these, 23,872 were cases of primary or secondary (P&S) syphilis, the infectious stages of syphilis. This corresponded to a rate of P&S syphilis in the U.S. of 7.5 cases per 100,000 people. MSM accounted for the majority of P&S syphilis cases with the highest rates observed among men aged 25–29 years and 20–24 years, in the West and in the South, and among Black men [1].

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 balding hair). 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 left untreated, complications such as blindness, dementia, damage to internal organs and possible death may occur.

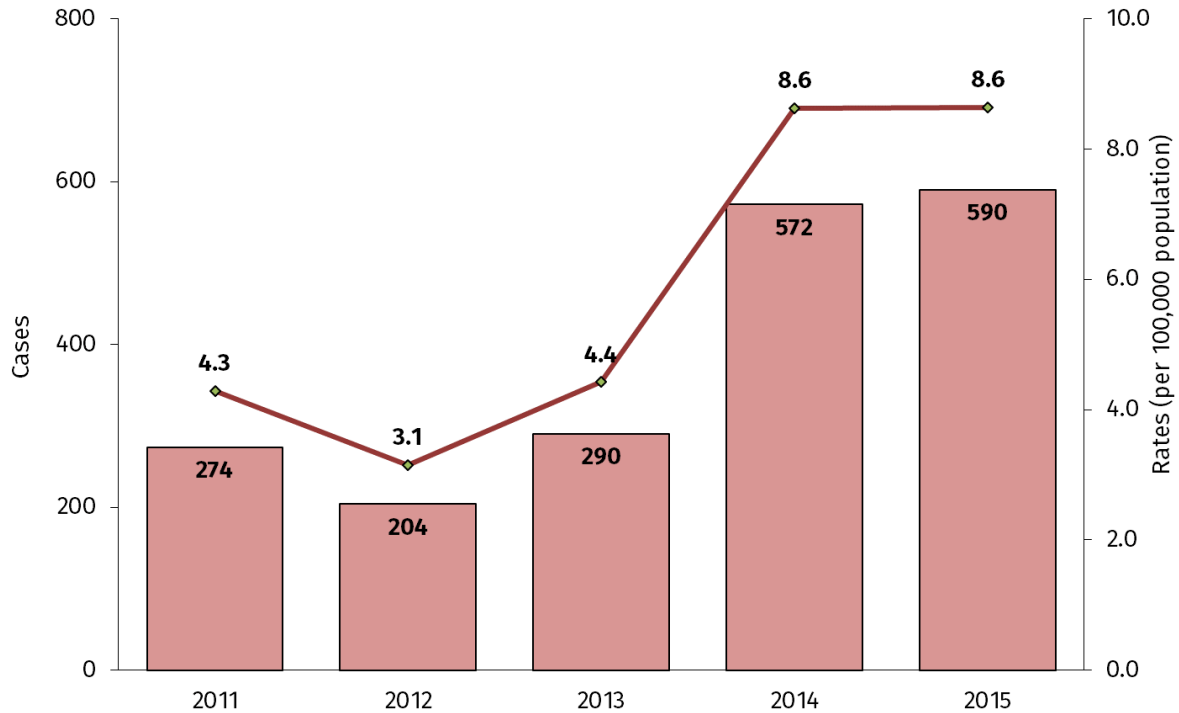
CDC recommends that all persons with symptoms be examined and all pregnant women be routinely tested [8] [9]. Arizona statutes (A.R.S R9-6-1102-4) require that pregnant women be tested at their first prenatal visit and, a Board Order in Maricopa County requests screening, in the third trimester. Any sexually active person at risk for acquiring syphilis should discuss their risks with a health care provider who can determine if testing is recommended.

Figure S1: Primary and Secondary Syphilis Rates per 100,000 in the United States and Arizona, 2006 - 2015



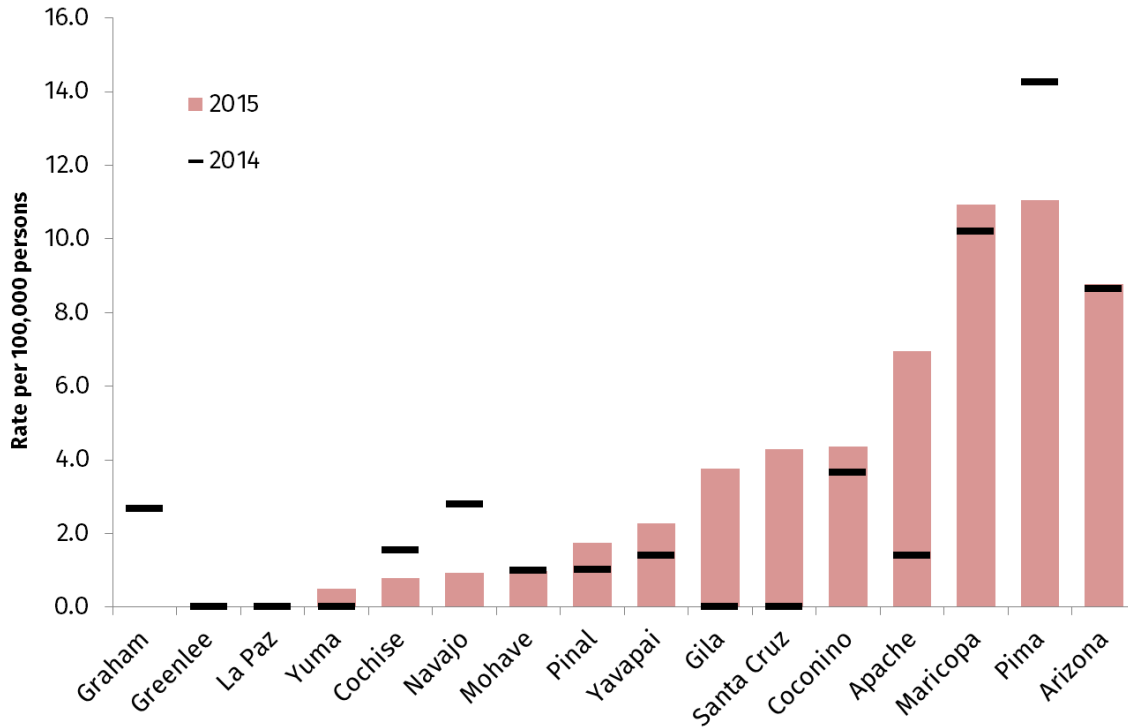
Ten Year Trend of P&S Syphilis Rates:

- While the U.S. as a whole has experienced a 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 2015 than it was in 2006. During this timeframe the U.S. experienced a 127% increase in the rate of P&S syphilis and Arizona experienced a 159% increase (Figure S1).
- Arizona had a total of 590 P&S syphilis cases, comprising 2.5% of the 23,872 cases nationwide.
- From 2009 to 2013, Arizona remained below the national rate until 2014, when Arizona surpassed the rate for the U.S. with a rate of 8.6 per 100,000 (a 95% rate increase).

Figure S2. Primary and Secondary Syphilis, Arizona 2011-2015

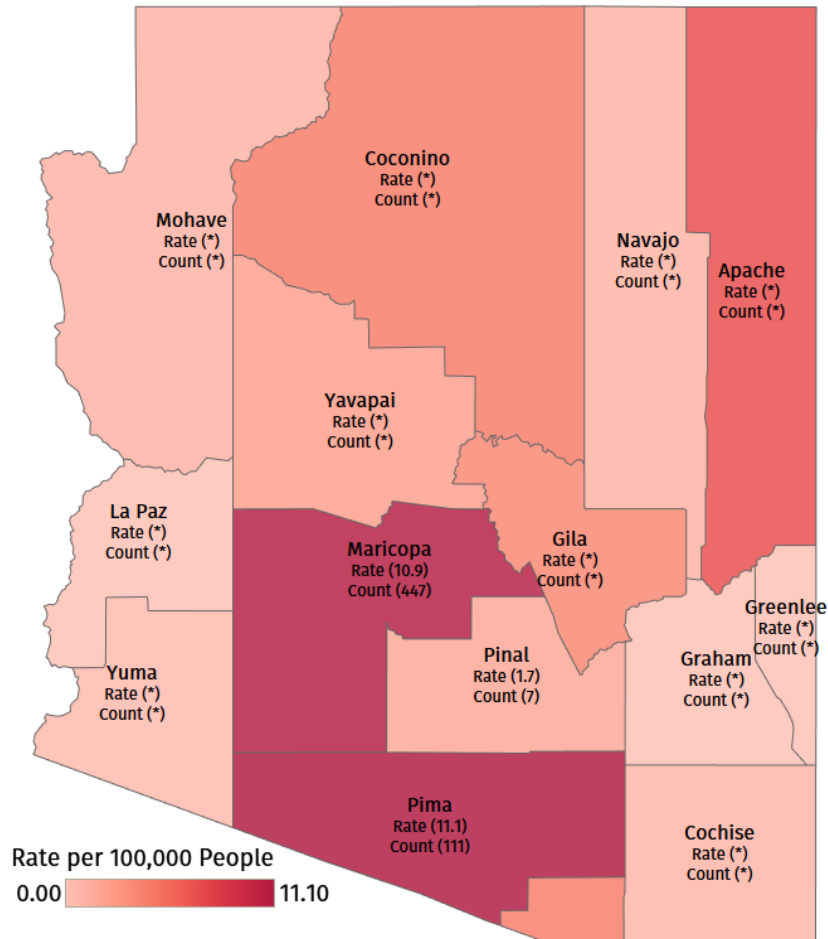
Statewide Disease Burden of P&S Syphilis:

- In 2015, the number of P&S syphilis cases in Arizona reached a 5 year high of 590 cases (Figure S2), but rates stayed relatively stable between 2014 and 2015, with a 2% rate increase from 8.6 to 8.8 cases per 100,000 and a 3% case increase from 572 to 590.
- Before 2014, the highest number of P&S syphilis cases reported in the last decade was 346 in 2007.
- Since 2011, there has been a 115% increase in P&S syphilis cases.
- 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 people, respectively.

Figure S3: Syphilis Rates by County, Arizona 2014/2015**P&S Syphilis Rates by County:**

- Maricopa and Pima counties, the two most populous of Arizona's 15 counties, accounted for approximately 95% of all P&S syphilis cases reported in 2015.
- Maricopa county reported 447 cases, the largest county total in over 10 years.
- The P&S syphilis rate in Maricopa County increased by 7% (from 10.2 to 10.9 per 100,000 in 2015) (Figure S3).
- In addition to Pima County's decrease, Cochise, Graham, and Navajo counties reported decreases in case counts and rates from 2014 to 2015.
- All other counties reported a year to year increase or no change in case counts.

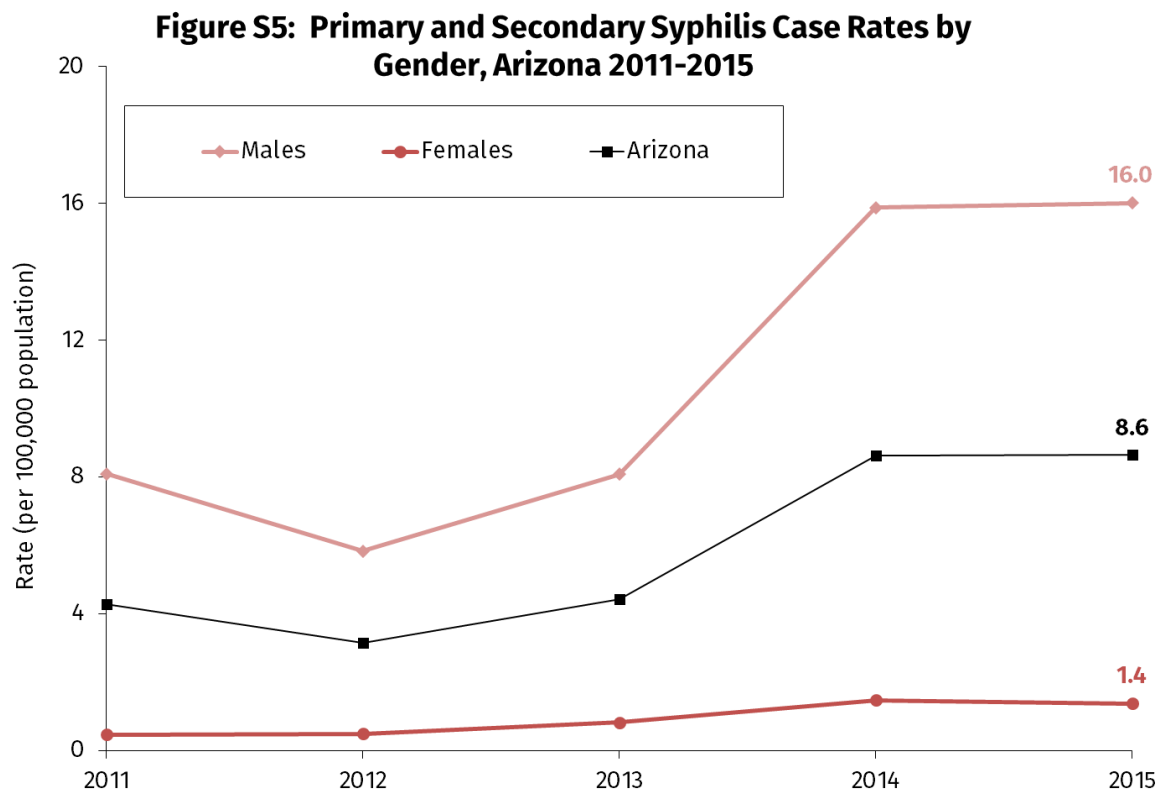
Figure S4: Primary/Secondary Syphilis Rates and Cases by County, Arizona 2015



*cases and rates censored in accordance with Table 1 due to case counts less than 6

P&S Syphilis Case Rates and Counts by County:

- Maricopa and Pima counties represent the highest case rates across the state at 10.9 per 100,000 and 11.1 per 100,000 respectively; the case counts in these counties represent 76% and 19% of the total cases.
- Pima County recorded 142 cases of P&S syphilis in 2014 and 111 in 2015. From 2014 to 2015, the case count dropped by 22%.
- Outside of Maricopa and Pima counties, the number of reported P&S syphilis cases increased from 2014 (21 cases) to 2015 (32 cases).



P&S Syphilis Rates by Gender:

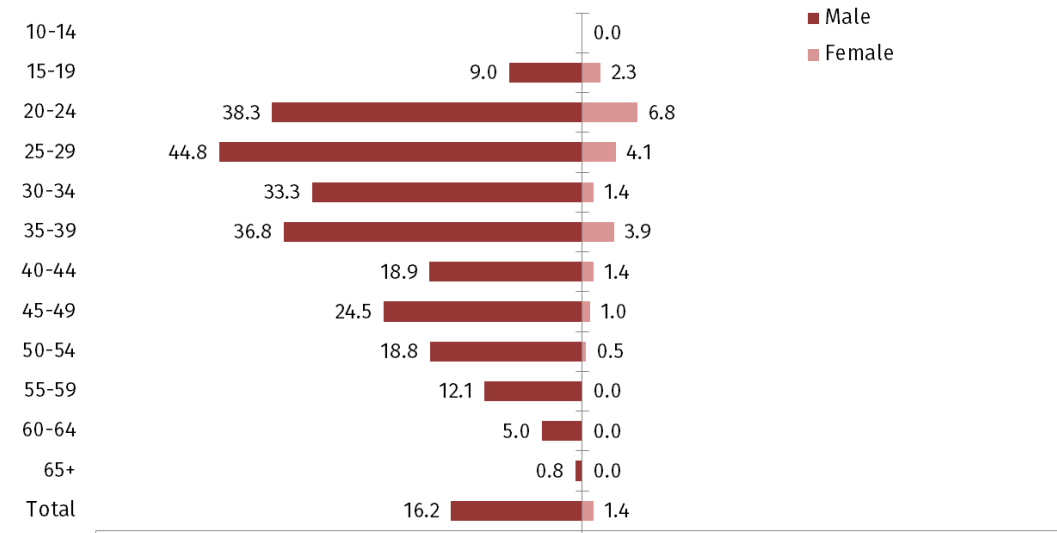
- The increase in P&S syphilis cases since 2013 was seen mostly among males. In 2013, 263 male cases of P&S syphilis were reported while 543 were reported in 2015. This represents a case increase of 106% among males. The increase in male cases from 2014 to 2015 was much less pronounced with an increase of only 4%.
- Among females, the case count increased from 27 in 2013 to 49 in 2014. In 2015, the case count decreased to 47 female cases.
- Since 2010, the P&S syphilis rate disparity between men and women in Arizona has been greater than 10 fold. The majority of P&S syphilis cases continue to be diagnosed among MSM (Figure S5).

Age group	2013		2014		2015	
	n	Rate	n	Rate	n	Rate
10-14	*	*	*	*	*	*
15-19	12	2.7	30	6.7	26	5.7
20-24	71	15.0	130	26.8	113	23.1
25-29	52	11.7	101	22.9	114	25.2
30-34	45	10.4	80	18.2	79	17.7
35-39	21	5.2	58	14.2	85	20.5
40-44	25	5.9	55	13.1	43	10.2
45-49	27	6.6	48	11.8	52	12.8
50-54	19	4.4	33	7.7	41	9.5
55-59	14	3.5	22	5.4	24	5.8
60-64	*	*	12	3.2	9	2.4
65+	*	*	*	*	*	*
Total	290	4.4	572	8.6	590	8.8
Percent under 30	47%		46%		43%	
Percent Under 40	69%		70%		71%	
Ages 0-9 not shown, Arizona rate reflects all ages.						
*Denotes case counts below 6. Additional cells may be censored to prevent calculation						

P&S Syphilis Rates by Age:

- Individuals less than 30 years of age accounted for approximately 43% of all P&S syphilis cases in 2015 compared to 47% in 2013 (Table S1).
- In 2015, the 25-29 age group accounted for the most of P&S syphilis cases as well as the highest P&S syphilis rate among all age groups displayed. This was a departure from previous years where the 20-24 age group was consistently the highest in both count and rate.
- With the exception of the shift from the 20-24 age group to the 25-29 age group, the proportion of cases by age group has not changed significantly.

Figure S6: Rates of Primary and Secondary Syphilis by Age Group and Gender, Arizona 2015

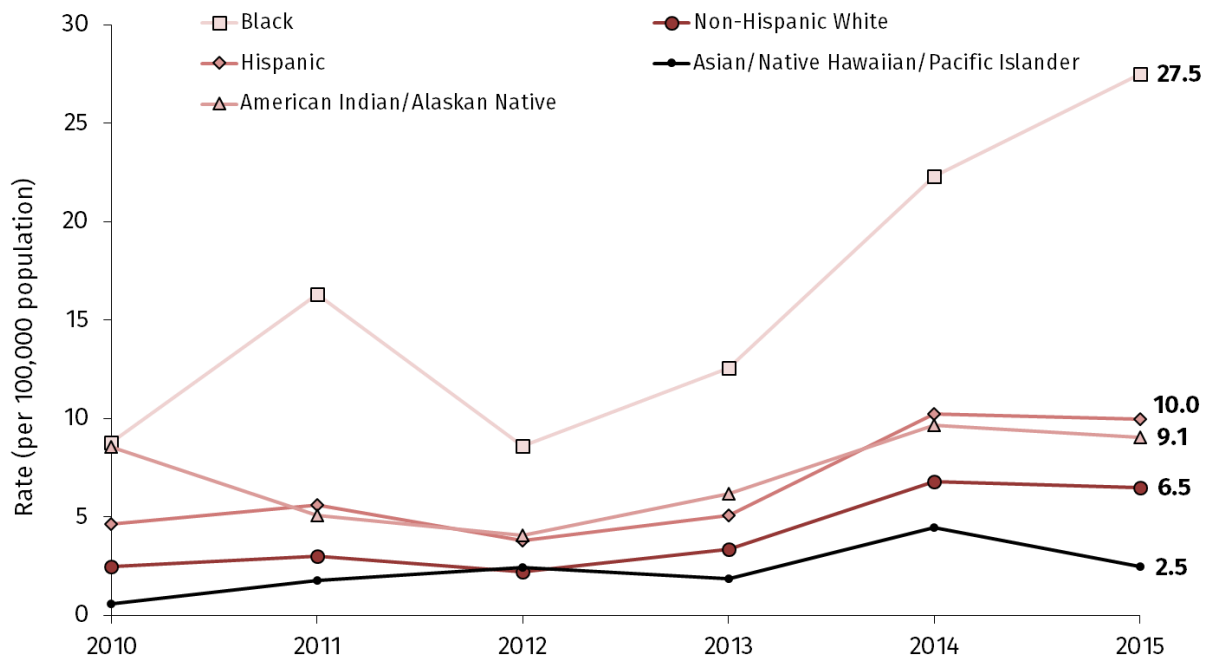


*Ages 0-9 not shown, Arizona rate reflects all ages.

P&S Syphilis Rates by Age Group and Gender:

- Males continue to bear the burden of disease, especially those aged 20-39 (Figure S6).
- The rate among males aged 25-29 at 44.8 per 100,000 is approximately 10.9 times the rate observed among women in the same age group.
- The case rate in 20-24 year-old males decreased by 19.9% from 2014 to 2015, while the case rate in 25-29 year old males increased by 19.5% (Figure S6).
- Between 2014 and 2015, the overall female case rate decreased by 6.7%, while the male case rate increased by 1.9%.

Figure S7: Primary and Secondary Syphilis Case Rates by Race/Ethnicity*, Arizona 2010 - 2015



Data is provisional and subject to change.
 2014 CDC bridged data used for 2015 case rate population denominators.
 * Due to data collection limitations, race/ethnicity rate data may be skewed

P&S Syphilis Rates by Race:

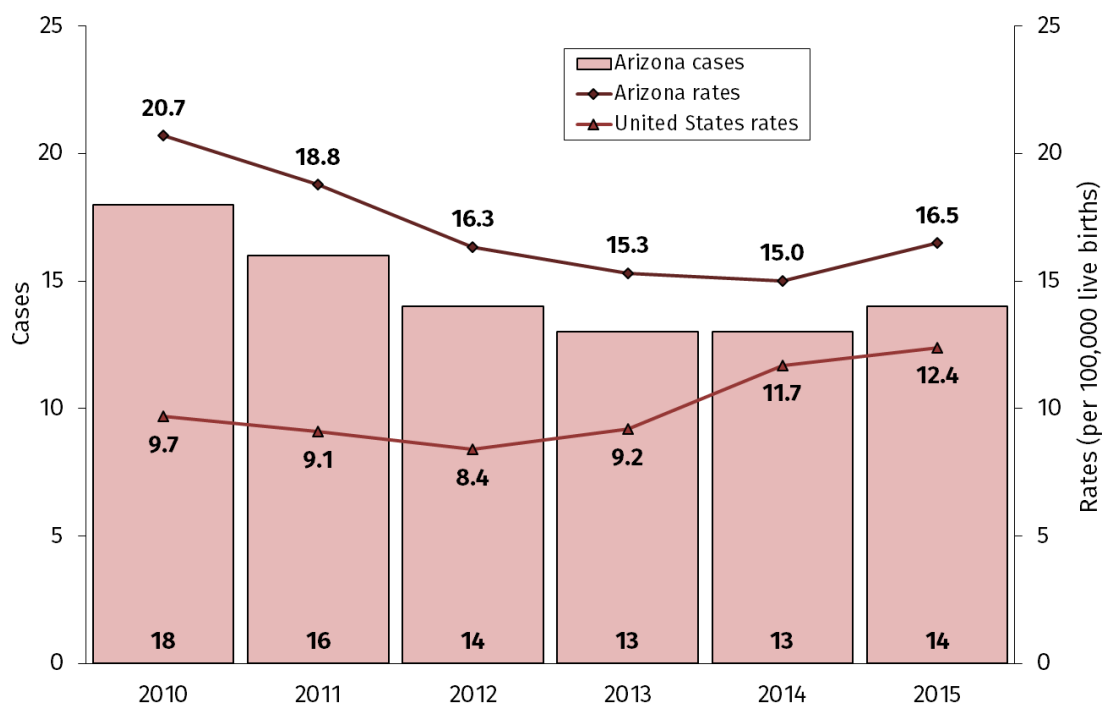
- Historically, the highest rates of P&S syphilis have been seen among the Black population. This trend continued in 2015 as this population experienced a large increase for the years 2012 to 2015 with an increase of 232% (Figure S7).
- The second largest increase (197%) over this three-year time frame was seen among Non-Hispanic Whites.

Special Focus Topics

Women and Congenital Syphilis

Mother to infant transmission of syphilis, also known as congenital syphilis, can occur across the placenta 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 at least 30 days before delivery, congenital syphilis can be prevented.

Figure SF1. Congenital Syphilis Cases and Case Rates per 100,000 Live Births by Birth Year, Arizona and United States 2010-2015

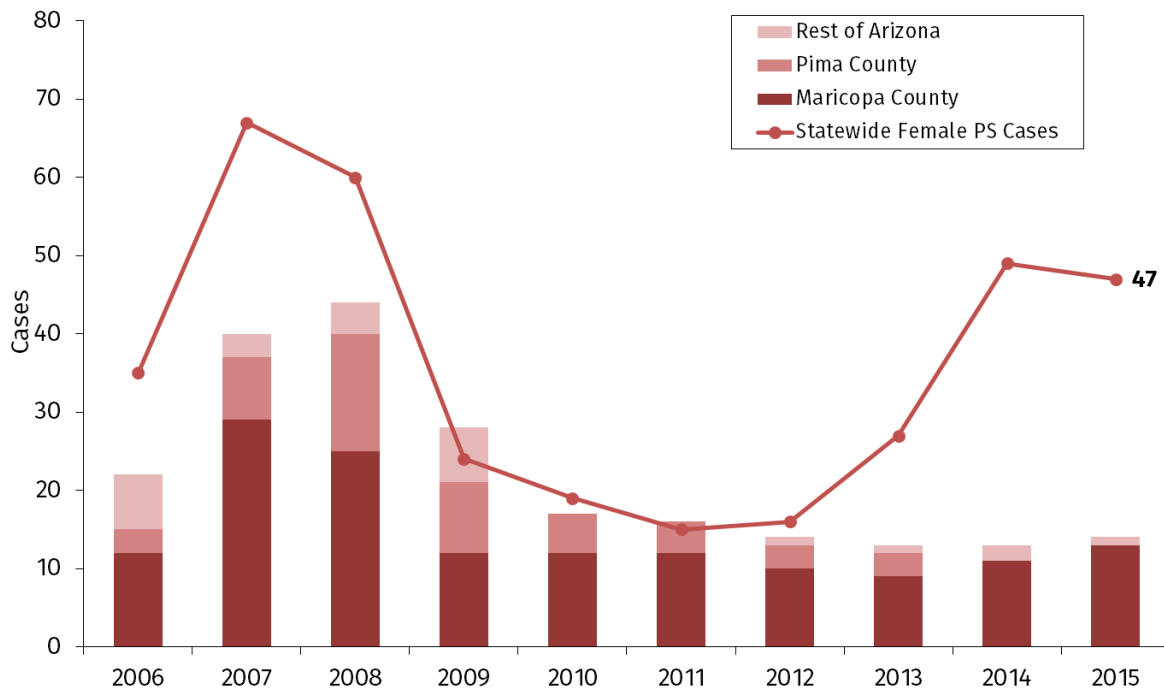


Disease Burden of Congenital Syphilis in Arizona and the U.S.:

- Along with the nationwide increase of female syphilis cases, the number of congenital syphilis cases in the U.S. in 2015 (487) is the highest reported since 2002 [1].
- The number of congenital syphilis cases in Arizona has slowly decreased from 2010 to 2014; however, there was a slight increase in 2015 (Figure SF1).

- Fourteen cases of congenital syphilis were reported in 2015 in Arizona (Figure SF1).

Figure SF 2: Congenital Syphilis Cases by County, Arizona 2006-2015

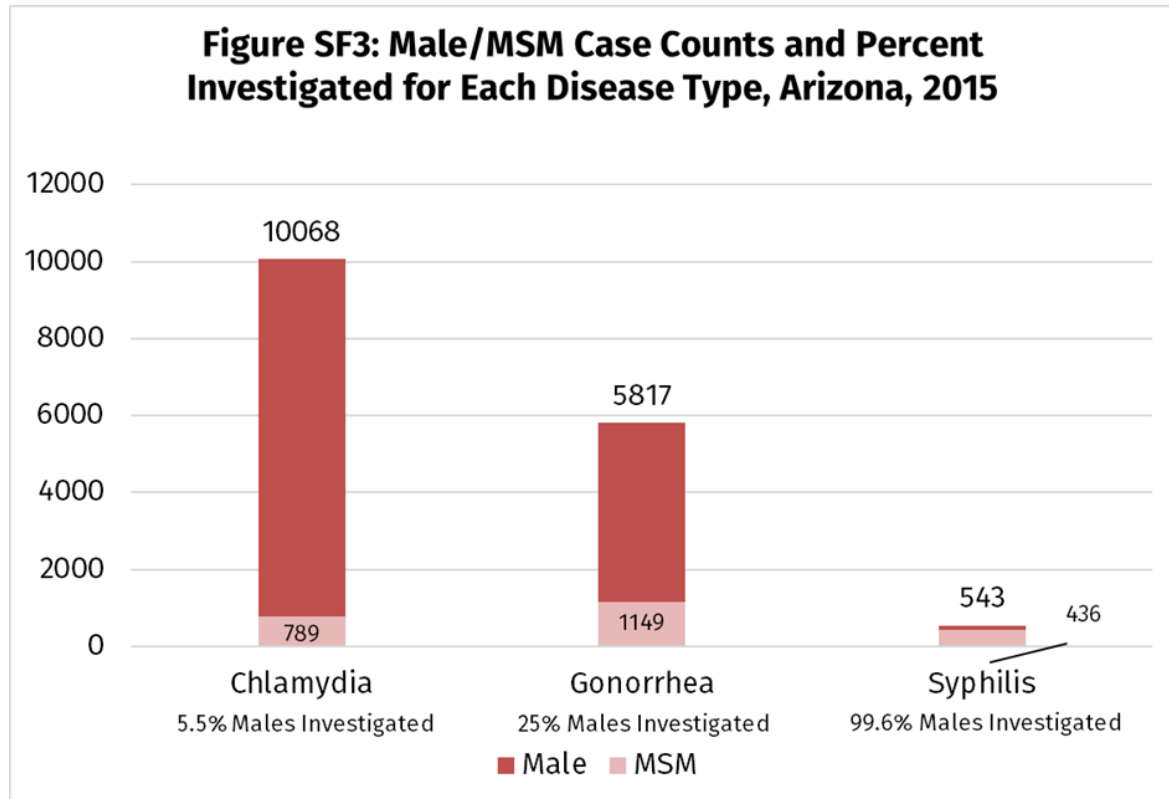


Congenital Syphilis Cases by County:

- Maricopa County accounted for approximately 93% of all congenital syphilis cases reported in 2015 (Figure SF2).
- Since 2012, Arizona has fluctuated between 13 and 14 reported congenital syphilis cases.
- It is interesting to note that despite the increase in female P&S syphilis cases in Arizona starting in 2011, the number of congenital syphilis cases has not increased as expected.

Men Who Have Sex with Men

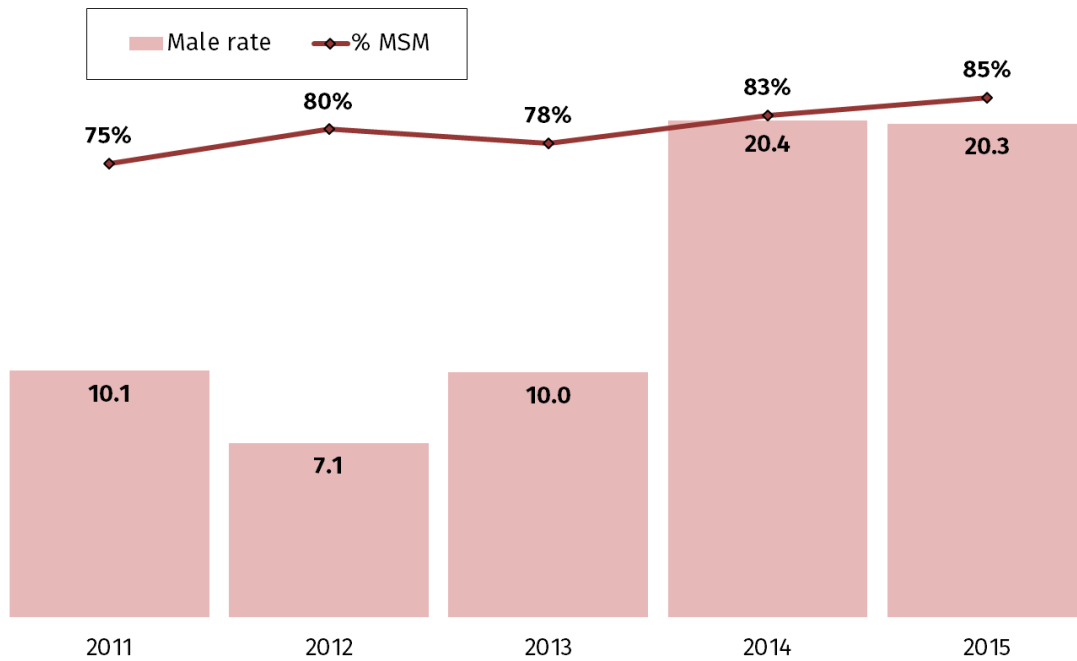
MSM represent a critical population in terms of STD control, as nearly 75% of P&S syphilis cases in Arizona are reported as MSM. Historically, MSM are also more likely to be co-infected with HIV compared to other populations, which increases the likelihood of adverse health events. MSM is the only male population for whom the CDC recommends annual STD screening, which highlights the importance of STD control among this population.



STDs among MSM in Arizona

- 789 (2.4%) of all chlamydia cases were male and identified as MSM.
- 1,149 (14%) of all gonorrhea cases were male and identified as MSM.
- 543 (92.0%) primary and secondary syphilis cases were male and 436 identified as MSM.

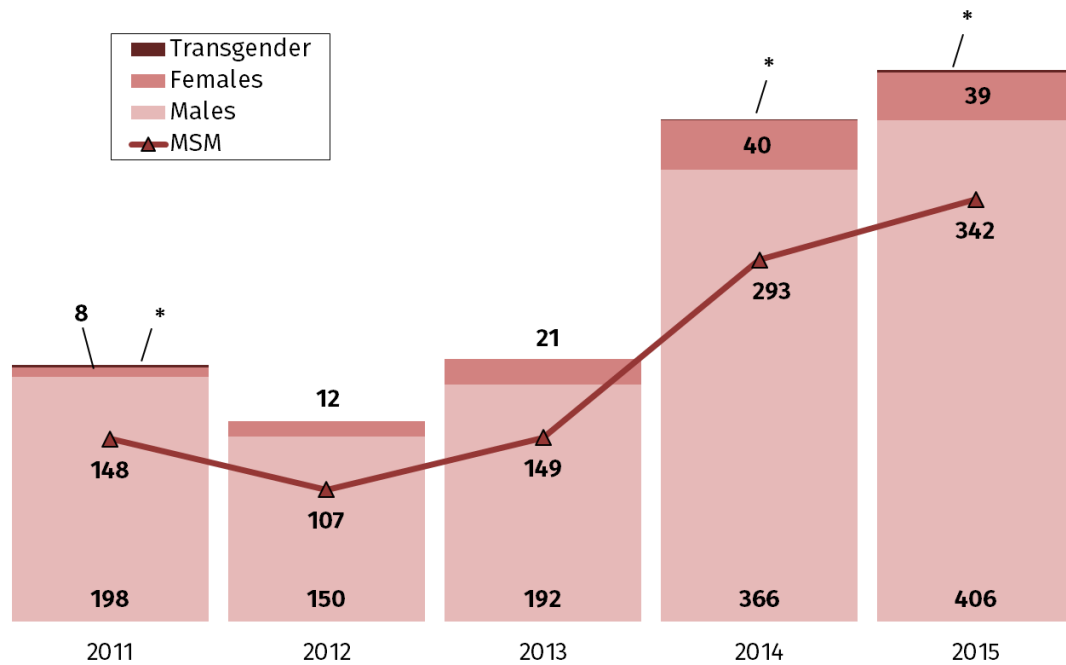
Figure SF4: Rate per 100,000 of Primary and Secondary Syphilis Cases among Males and the Percentage of Male Cases that Identify as MSM, Maricopa and Pima Counties, 2011-2015



P&S Syphilis among MSM in Maricopa and Pima Counties

- 83% of males in Maricopa and Pima counties identified as MSM in 2014 and 85% did in 2015 (Figure SF4).
- Statewide, MSM comprise the majority of P&S syphilis cases, making up nearly 75% of the total count.

Figure SF5: Primary and Secondary Syphilis Case Counts by Gender and Sexual Preference, Maricopa County 2011-2015

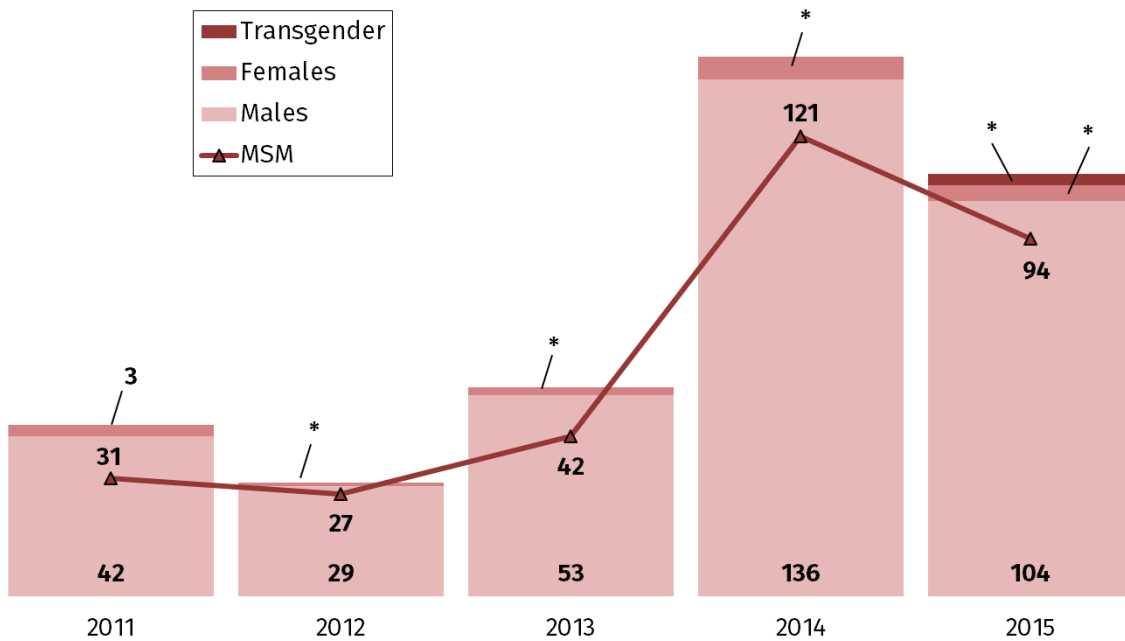


* denotes case counts of less than 6

P&S Syphilis among MSM in Maricopa County

- The number of reported P&S syphilis cases among men that self-reported as MSM in Maricopa County reached a 10 year high (342 cases) in 2015 (Figure SF5).
- 58% of Arizona's P&S cases reside in Maricopa County and are MSM.
- From 2012 to 2015, there has been a 170% increase in male P&S cases and a 220% increase in MSM cases.
- The proportion of males cases who identify as MSM has also been increasing from 71% in 2012 to 84% in 2015.

Figure SF6: Primary and Secondary Syphilis Case Counts by Gender and Sexual Preference, Pima County 2011-2015



* denotes case counts of less than 6

P&S Syphilis among MSM in Pima County

- The number of reported P&S syphilis cases among men that self-reported as MSM in Pima County reached a 10 year high (342 cases) in 2015 (Figure SF6).
- 16% of Arizona's P&S syphilis cases reside in Pima County and are MSM.
- From 2011 to 2014, there was a 224% increase in male P&S cases and a 290% increase in MSM cases. However, from 2014 to 2015 Pima County saw a 24% decrease in male P&S cases and a 22% decrease in MSM cases.
- The proportion of male cases who identify as MSM has also been increasing from 74% in 2011 to 90% in 2015.

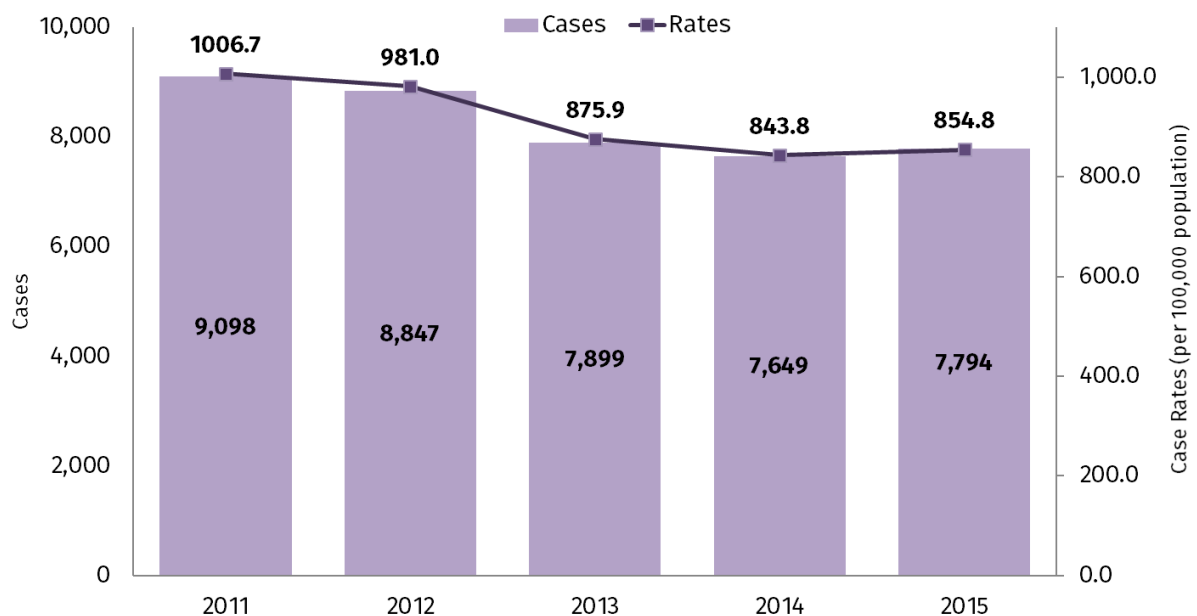
Adolescents and Young Adults

Adolescents and young adults represent a unique and important population. Case counts and rates for STDs among those aged 10-19 are among the highest in Arizona. Studies have shown that adolescents and young adults are more susceptible to STDs due to the friability of tissues at that age. This, coupled with the potential asymptomatic nature of STDs, puts female adolescents at a greater risk of developing irreversible consequences caused by Pelvic Inflammatory Disease. This has led to CDC's recommendation to screen all sexually active women under the age of 25 years.

Chlamydia

Statewide Chlamydia Cases and Case Rates among Adolescents and Young Adults

Figure SF7: Chlamydia Cases and Case Rates in 10 - 19 Year Olds, Arizona, 2011 - 2015

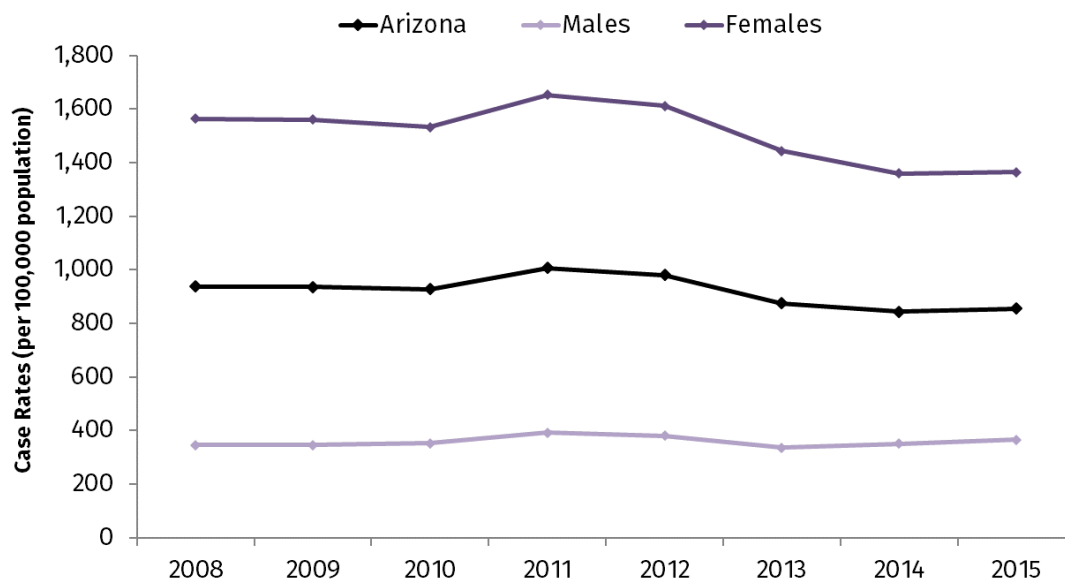


Data is provisional and subject to change.
 * 2014 CDC bridged data used for 2015 case rate population denominators

- In 2015, 7,794 chlamydia infections were reported among 10-19 year olds, an increase of 1.9% from 2014 (Figure SF7).
- The reported case rate for this age group also decreased between 2014 and 2015 from 843.8 to 854.8 cases per 100,000 persons, which was an increase of 1.3%.

- Despite the more recent decreases in overall case counts and case rates for 10-19 year olds, the total number of cases has increased 1.2% from 2006-2015. The peak case count and case rate for this group occurred in 2011 when there were 9,098 reported chlamydia cases.
- Arizona adolescents have represented fluctuating proportions of all chlamydia cases. Though the group has averaged 29.7% of all cases from 2006 to 2015, they represented a maximum of 34.6% in 2008 and the current ten-year minimum of 24.0% in 2015.
- From the decade's high annual case count and case rate observed in 2011, chlamydia cases have decreased by 14.3% and the case rate has decreased 15.1%.

Figure SF8: Chlamydia Case Rates by Gender in 10 - 19 Year Olds, Arizona, 2006 - 2015



Data is provisional and subject to change.

* 2014 CDC bridged data used for 2015 case rate population denominators

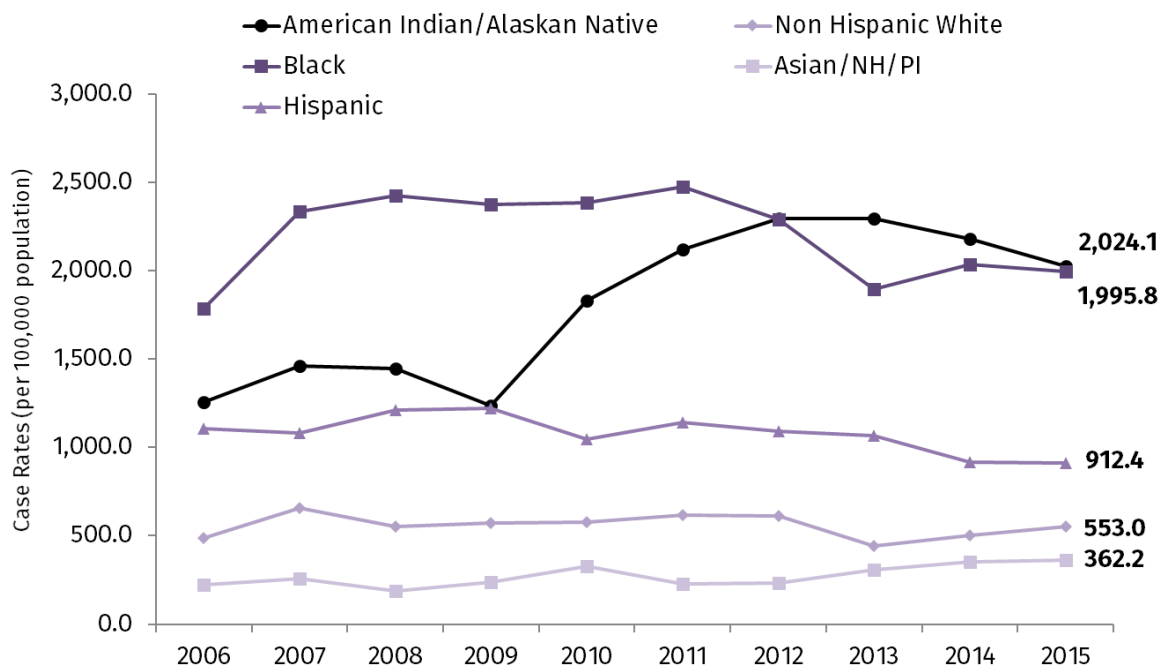
Chlamydia Rates by Gender among Adolescents and Young Adults

- Gender-based disparities have remained fairly constant from 2006-2015, with the largest gap in rates observed in 2011, when there were 4 cases among 10-19 year-old females for each single case reported among 10-19 year-old males (per 100,000 persons). The gender gap decreased slightly in 2015 to 3.7 female cases per each male case (Figure SF8).
- While the case rate among 10-19 year-old females was 1.6 times the state rate in 2015 (1,365.1 vs 854.8 cases per 100,000 persons), males in the same age group had a case rate that was 0.4 times that of the state rate in 2015 (365.7 vs 854.8 cases per 100,000 persons).

Chlamydia Rates and Counts among Adolescents and Young Adults by County

- Among adolescent female infections in Arizona, Maricopa County contributed 60% of cases and Pima County contributed 18% of cases. Among adolescent male infections, Maricopa County contributed 64% of reported cases and Pima County contributed 17% of reported cases (Appendix Figures 1-4).
- Among Arizona adolescents, Coconino, La Paz, Navajo, and Pima Counties had the highest rates of reported chlamydia infection (1,197.3, 1,102.9, 1,257.2, and 1,087.4 cases per 100,000 persons, respectively) (Appendix Figures 1-4).

Figure SF9: Chlamydia Case Rates by Race/Ethnicity* in 10 - 19 Year Olds, Arizona, 2006 - 2015



Data is provisional and subject to change.
 2014 CDC bridged data used for 2015 case rate population denominators
 *Due to data collection limitations, race/ethnicity data may be skewed

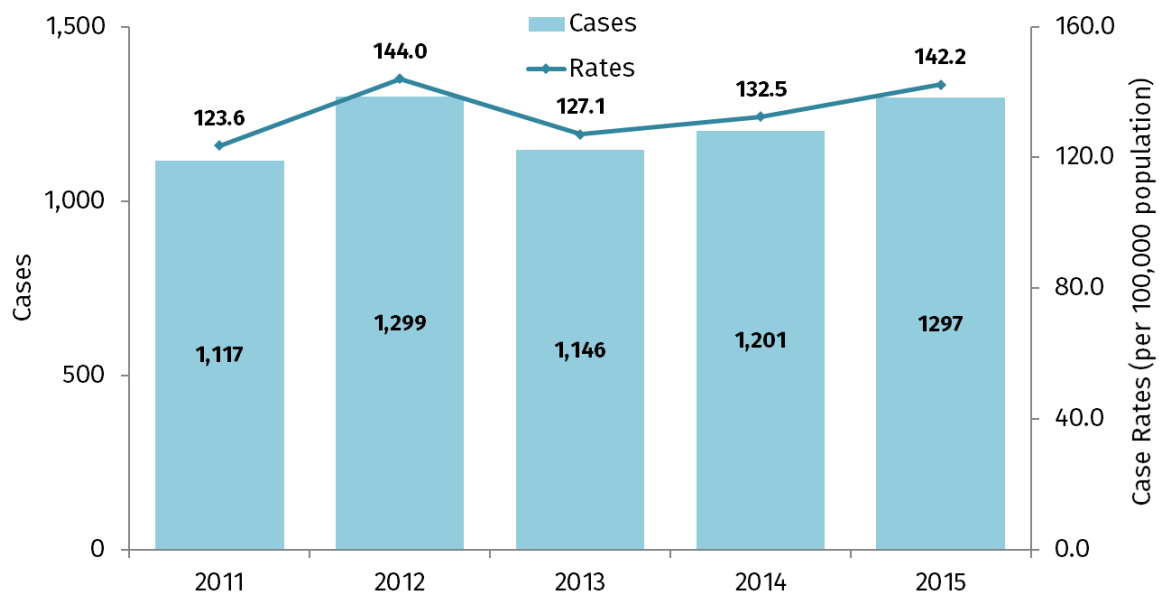
Chlamydia Rates by Race/Ethnicity among Adolescents and Young Adults

- Disparities among adolescent Arizonans of different racial/ethnic groups have been observed consistently over the last decade.
- Case rates among Black and American Indian/Alaskan Native adolescents have been the highest among 10-19 year olds, with their rates at 3.6 and 3.7 times that of non-Hispanic Whites in 2015 (1,995.8 and 2,024.1 cases per 100,000 persons, respectively) (Figure SF9).

- American Indians/Alaskan Natives aged 10-19 years old surpassed the reported case rate of Black youth in the same age range from 2012 to 2015.
- Though a 10.4% increase was observed among Asian/Non-Hispanic/Pacific Islander adolescents from 2014 to 2015, this group contributed only 0.9% of overall morbidity among 10-19 year olds. Conversely, 31.5% and 30.6% of cases in this age group were represented by Hispanics and non-Hispanic Whites respectively.

Gonorrhea

Figure SF10: Gonorrhea Cases and Case Rates in 10-19 Year Olds, Arizona 2011-2015



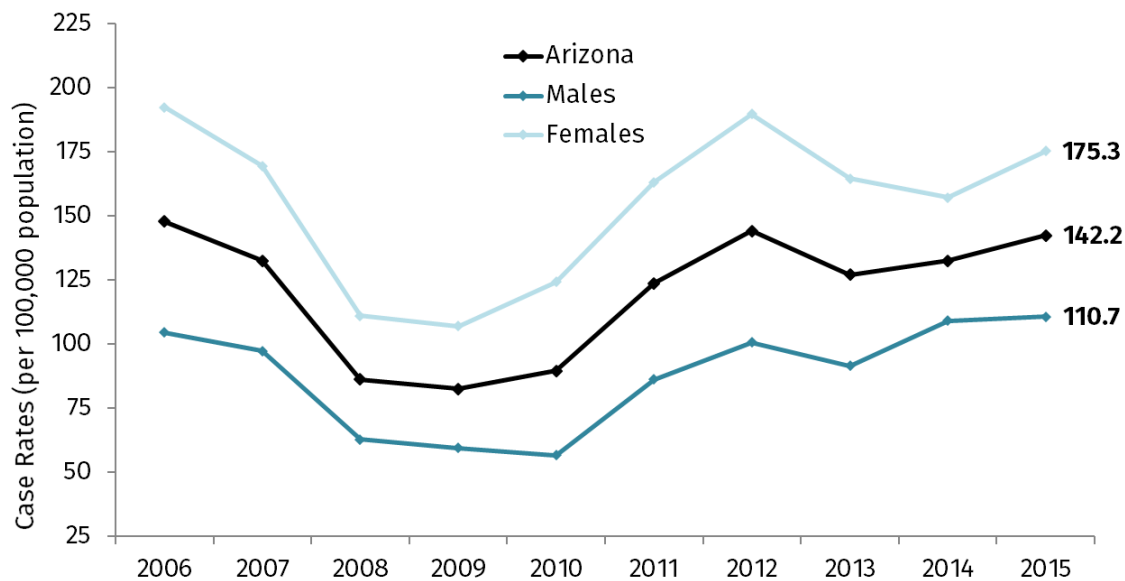
Data is provisional and subject to change.

* 2014 CDC bridged data used for 2015 case rate population denominators

Statewide Gonorrhea Cases and Case Rates among Adolescents and Young Adults

- In 2015, there were 1,297 cases of gonorrhea reported among 10-19 year olds in Arizona, an increase of 8.0% from 2014 (Figure SF10).
- The case rate among this age group also increased from 132.5 to 142.2 cases per 100,000 persons, an increase of 7.3%.
- Over the course of the last five years, the proportion of Arizona cases reported for persons between ages 10-19 has steadily decreased, with adolescents representing a five-year low of 15.7% of all reported cases in 2015 (Figures SF10 and GC2).
- Since 2011, the case count among 10-19 year olds has increased 16.1%, and the case rate has increased 15.0%.
- Current case rates have decreased 3.7% from those observed among adolescents in 2006, the peak year for gonorrhea morbidity within this group.

Figure SF11: Gonorrhea Case Rates by Gender in 10 - 19 Year Olds, Arizona, 2006 - 2015



Data is provisional and subject to change.

* 2014 CDC bridged data used for 2015 case rate population denominators

Gonorrhea Rates by Gender among Adolescents and Young Adults

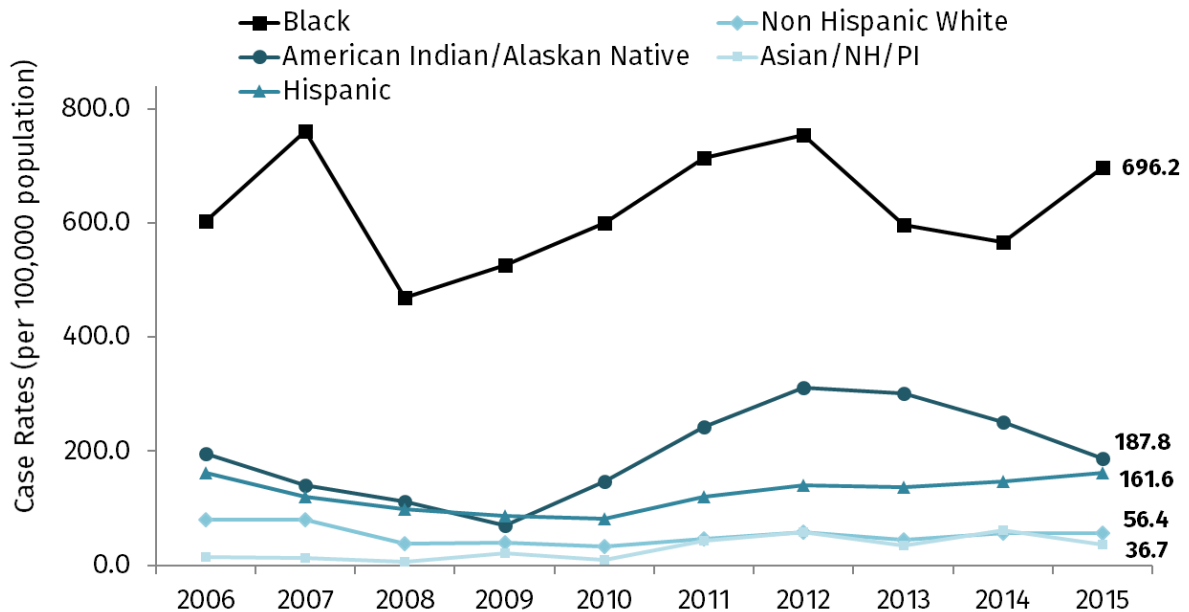
- Gender-based disparities in reported gonorrhea infection among adolescents are the reverse of that observed for all age groups in the state, with adolescent females having both higher case counts and rates than adolescent males (Figure SF11).
- The case rate observed among females increased 11.6% from 2014-2015 while the male case rate increased 1.6% to 110.7 per 100,000 people, the highest male case rate in the last decade. These fluctuations have led to a slightly wider gender gap in comparison with 2014.

Gonorrhea Case Rates and Counts among Adolescents and Young Adults by County

- Among Arizona females aged 10-19, Maricopa County reported 68% of all gonorrhea infections and Pima County reported 17% (Appendix Figures 5-8).
- Among males aged 10-19, Maricopa County reported 73% of all gonorrhea infections and Pima County reported 15% (Appendix Figures 5-8).
- The highest case rates among adolescent females were observed in Maricopa and Navajo Counties (212.1 and 266.7 per 100,000 persons, respectively) (Appendix Figures 5-8).

- The highest case rates among adolescent males were observed in Maricopa and Graham Counties (136.3 and 101.3 per 100,000 persons, respectively) (Appendix Figures 5-8).

Figure SF12: Gonorrhea Case Rates by Race/Ethnicity* in 10-19 Year Olds, Arizona, 2006 - 2015



Data is provisional and subject to change.

* 2014 CDC bridged data used for 2015 case rate population denominators

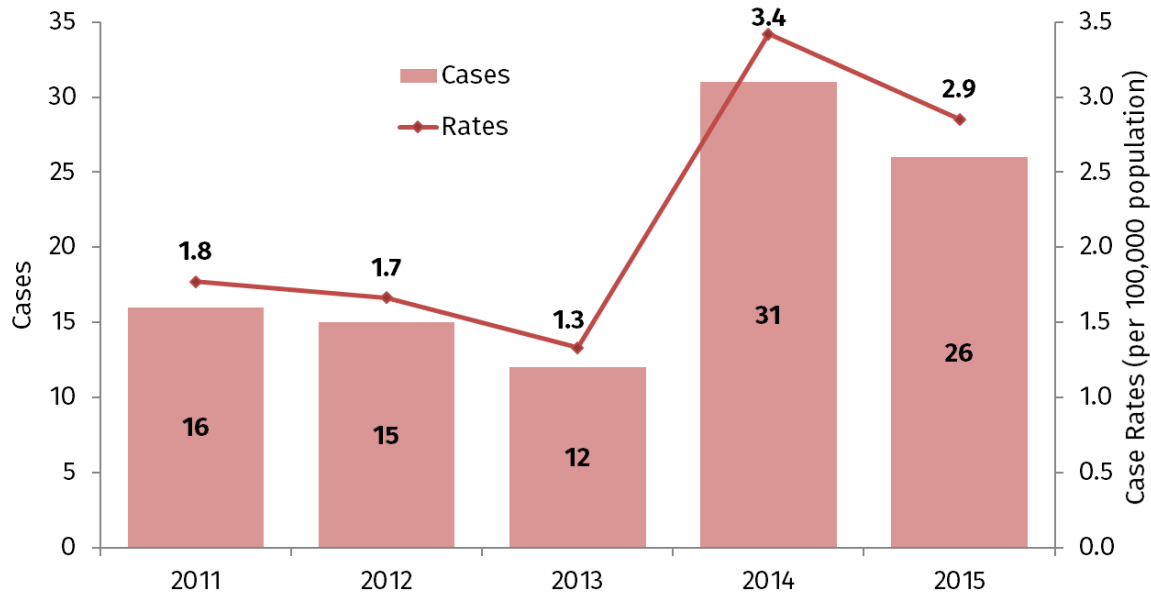
* Due to data collection limitations, race/ethnicity data may be skewed

Gonorrhea Rates by Race/Ethnicity among Adolescents and Young Adults

- Disparities based on race/ethnicity among adolescents have also been a predominant feature of reported gonorrhea infections over the last decade.
- Black adolescents continue to record the highest case rate among race/ethnicity groups with a rate of 696.2 per 100,000 persons, a 23% increase from 2014 (Figure SF12).
- American Indian/Alaskan Native adolescents recorded a decrease in case rates for the fourth straight year (311.5 to 187.8 cases per 100,000 from 2012 to 2015).

Primary and Secondary Syphilis

Figure SF13: Primary/Secondary Syphilis Cases and Case Rates in 10 - 19 Year Olds, Arizona, 2011 - 2015



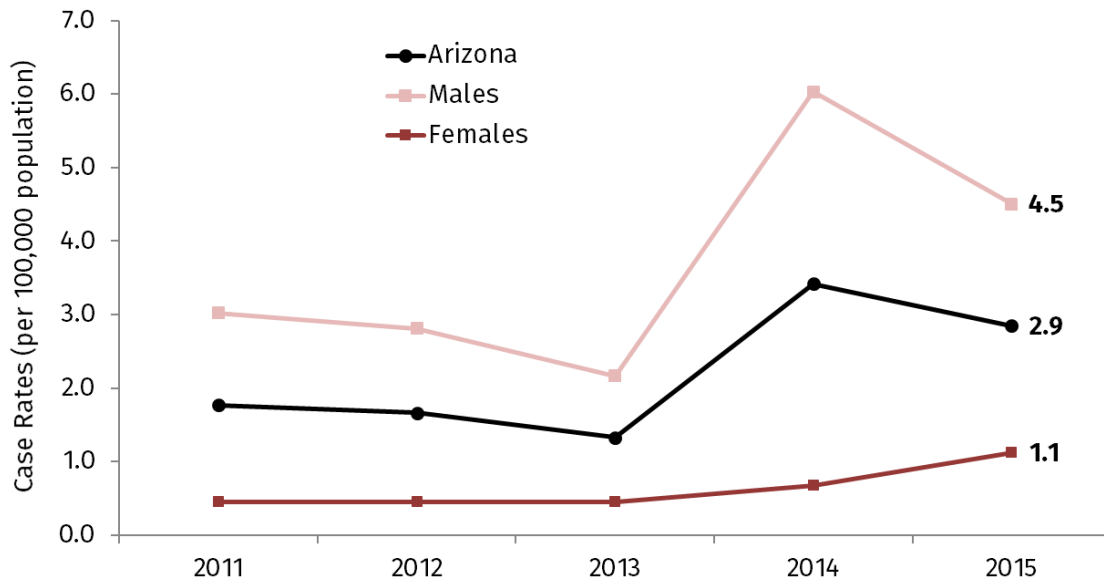
Data is provisional and subject to change.

* 2014 CDC bridged data used for 2015 case rate population denominators

Statewide P&S Syphilis Cases and Case Rates among Adolescents and Young Adults

- The rate of P&S syphilis among 10 – 19 year olds in Arizona drastically jumped from 1.3 to 3.4 cases per 100,000 from 2013 to 2014 (162% increase). This followed the statewide jump in P&S syphilis observed in all age groups (Figure S1). In 2015, the adolescent rate dropped from 3.4 to 2.9 per 100,000, a 14.7% decrease from 2014 (Figure SF13).
- In 2015, 84.6% of P&S syphilis cases among 10-19 year olds in Arizona were reported from Maricopa and Pima Counties (Appendix Tables 9 and 10).
- P&S syphilis cases among 10-19 year olds accounted for only 4.4% of all reported P&S syphilis cases in 2015 (Figures S1 and SF13).

Figure SF14: Primary/Secondary Syphilis Case Rates by Gender in 10 - 19 Year Olds, Arizona, 2011 - 2015



Data is provisional and subject to change.

* 2014 CDC bridged data used for 2015 case rate population denominators

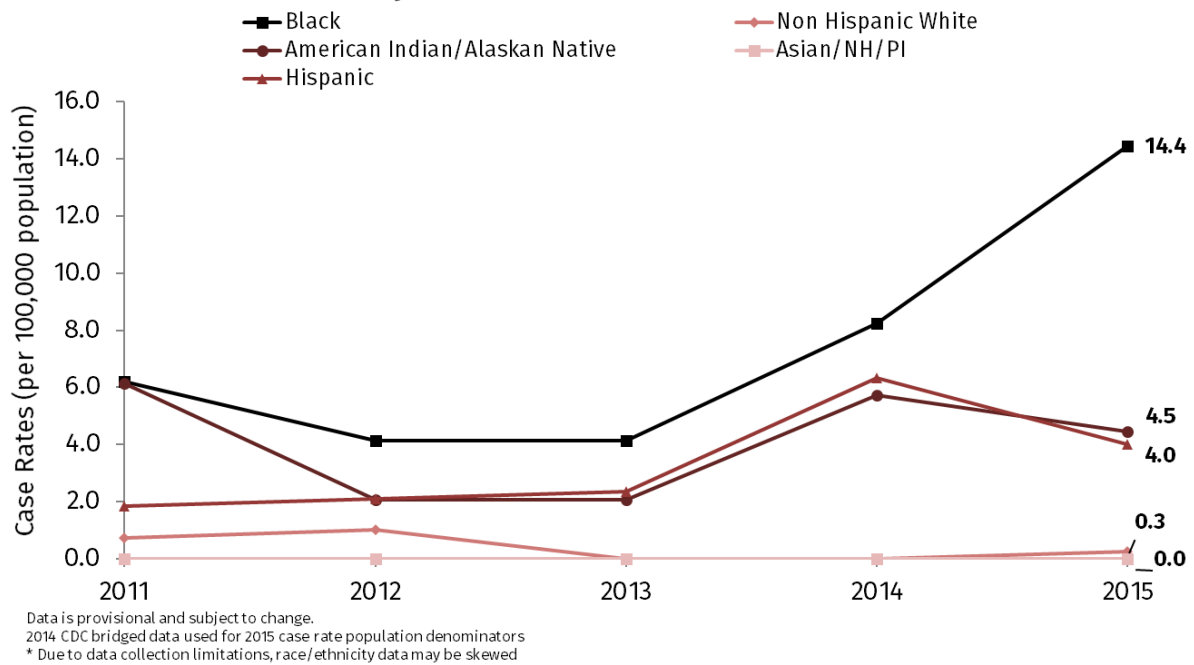
P&S Syphilis Rates by Gender among Adolescents and Young Adults

- The rate of P&S syphilis for adolescent males changed vastly from 2013 to 2014, jumping from a case rate of 2.2 to 6.0 cases per 100,000. Between 2014 and 2015, the rates of P&S syphilis in adolescent males experienced a drop to 4.5 cases per 100,000 while the adolescent female case rate showed a marginal rise between 2014 and 2015 from 0.7 cases to 1.1 cases per 100,000 (Figure SF14).
- The rate for females has experienced a steady increase from 2011 to 2015, rising 120% (0.5 cases per 100,000 to 1.1 cases per 100,000).
- Males reported 81% of P&S syphilis infections in the 10-19 age group (Appendix Table 9).

P&S Syphilis Case Rates and Counts among Adolescents and Young Adults by County

- Maricopa and Pima Counties accounted for a combined 95% of all Arizona P&S syphilis morbidity in 2015 (Figure S4).
- Due to the low case counts in this age group, many of the county-specific results have been censored, especially for females (Appendix Tables 9 - 12).

Figure SF15: Primary/Secondary Syphilis Case Rates by Race/Ethnicity* in 10-19 Year Olds, Arizona, 2011-2015



P&S Syphilis Rates by Race/Ethnicity among Adolescents and Young Adults

- Non-Hispanic White 10-19 year olds experienced an overall decrease in the rate of P&S syphilis from 2011 to 2015. The rate among this group went to 0 cases per 100,000 in 2013 and 2014. In 2015, the rate increased slightly to 0.3 per 100,000 (Figure SF15).
- Hispanic 10-19 year olds had an overall increase in rate from 2011 (1.8 cases per 100,000 population) to 2015 (4.0 per 100,000). The rate among Hispanic 10-19 year olds in Arizona is more than 10 times greater than the rate among Non-Hispanic White, 10-19 year olds in Arizona.
- Among Black 10-19 year olds, the rate of P&S syphilis reached a 10 year high of 14.4 cases per 100,000 people in 2015. This is a 132% increase from 2011 where the rate was 6.2 cases per 100,000. The rate of P&S syphilis among Black 10-19 year olds in Arizona in 2015 is more than 3 times greater than the rate among Hispanic and American Indian/Alaskan Native 10-19 year olds in Arizona.
- The rate of P&S syphilis among adolescent American Indian/Alaskan Natives has decreased overall from 2011 to 2015 (6.1 to 4.5 cases per 100,000).
- It is worth noting that Asian and Native Hawaiian/Pacific Islander adolescents have reported 0 cases of P&S syphilis in the last 5 years.

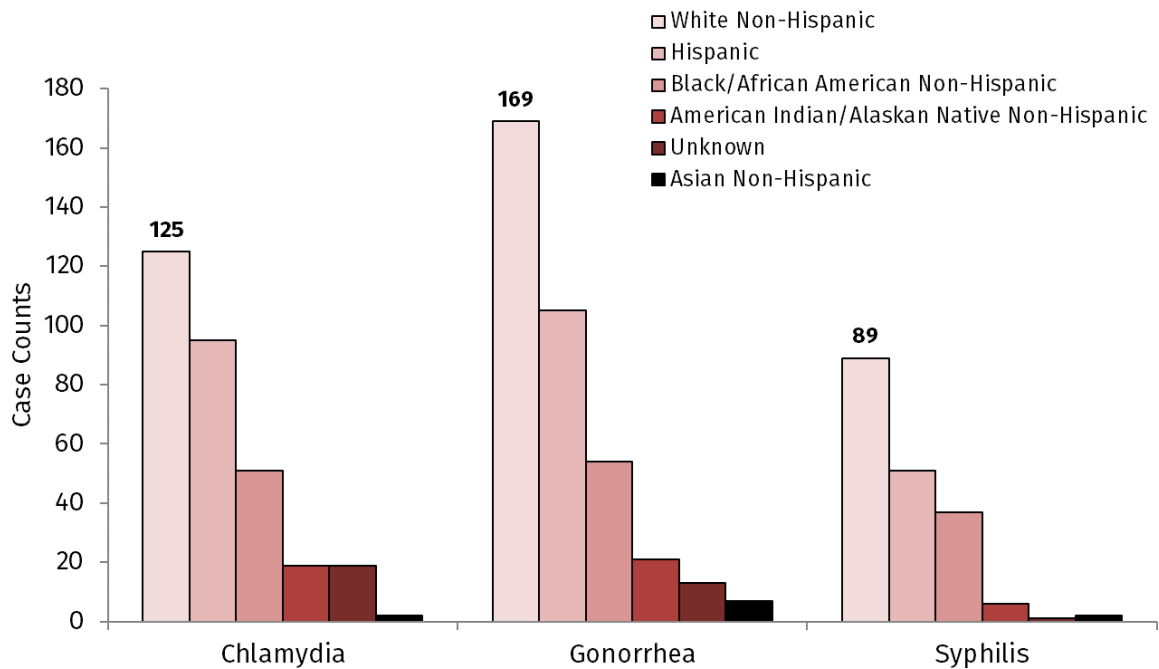
Reinfections and Co-Infections

HIV/STD Co-Infections

Studies have long supported the notion that people diagnosed with STDs are at an increased risk for acquiring HIV [10] [11] [12]. There are several possible reasons this interaction exists. Risky behaviors (e.g., no condom use, anonymous sex) can drastically increase the risk of obtaining other infections. Also, since HIV and STD are both sexually transmitted and tend to be linked, when a person gets an STD, it could suggest that the infection might have come from a partner who is also at risk for HIV. Many symptoms of STDs also involve inflammation or sores that can compromise the skin barrier that might have otherwise prevented HIV infection. Studies have also shown that HIV-positive individuals who are co-infected with STDs tend to have higher HIV viral shedding than those who do not have STDs; thus, there is an increase in the risk for HIV transmission [13] [14].

Since Maricopa County reports the highest morbidity in both HIV and STDs, the following information focuses on this county, specifically.

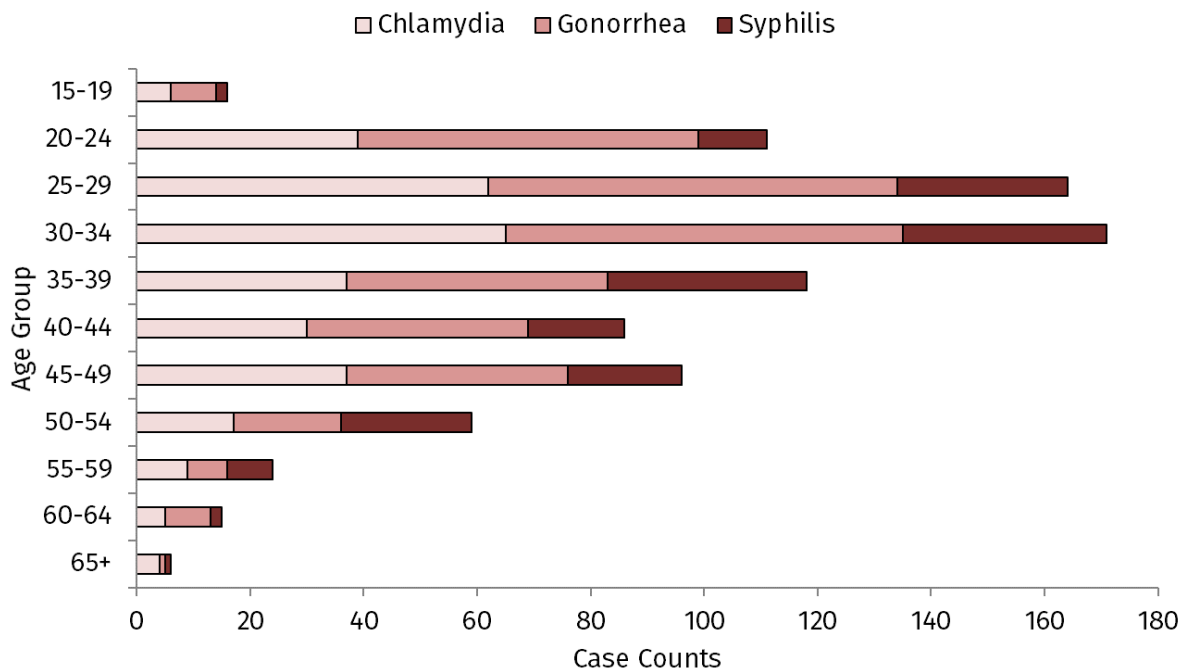
Figure SF16: HIV/STD Co-Infections by Race, Maricopa County 2015



HIV/STD Co-Infections by Race/Ethnicity

- The White Non-Hispanic population experiences the highest counts of HIV/STD co-infection for all STDs compared to every other race category (Figure SF16).
- Hispanic and Black/African American Non-Hispanic individuals made up the second and third highest race categories with a combined 45% of the total.

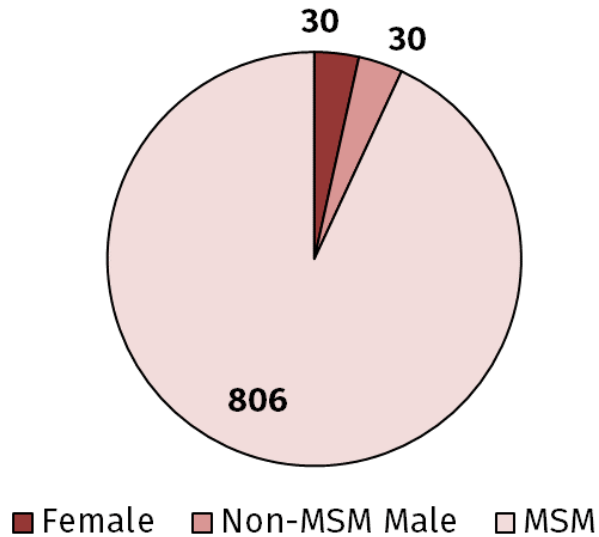
Figure SF17: HIV/STD Co-Infections by Age Group, Maricopa County 2015



HIV/STD Co-Infections by Age Group

- As seen with other STDs, young people between the ages of 20 and 34 make up the majority of HIV/STD co-infected cases. This is especially true for gonorrhea and chlamydia (Figure SF17).
- The most common age bracket for HIV/syphilis co-infection is between 25 and 39.
- There is a slight increase in co-infections in the 45-49 age category, largely made up of White Non-Hispanic people.

Figure SF18: HIV/STD Co-Infections by Gender and Sexual Preference, Maricopa County 2015



HIV/STD Co-Infections by Race/Ethnicity

- When broken up by gender and sexual preference, males, both MSM and non-MSM, made up 97% of the co-infected group. MSM specifically made up an alarming 93% of the total (Figure SF18).
- Female cases only comprised 3% of the total case count.

Chlamydia and Gonorrhea Repeat Infections and Co-Infections

Repeat infections with chlamydia and gonorrhea are common in Arizona and can be serious for many of the same reasons discussed in the HIV/STD co-infection section of this report. Apart from the known complications of infection, having multiple infections can greatly increase the risk of serious reproductive complications like PID and issues during pregnancy. For this reason, it is highly recommended that those infected with STDs have their partners adequately tested and return for retesting three months later to ensure that re-infection has not occurred. [Expedited partner therapy](#), the practice of providing medication or a prescription to an infected patient to give to a partner, is also legal in Arizona. Although less than ideal, it can be very effective in preventing re-infection when the partner is unlikely to come in for testing.

Figure SF19: Repeat Chlamydia Infections by Gender/Sexual Preference, Arizona 2015

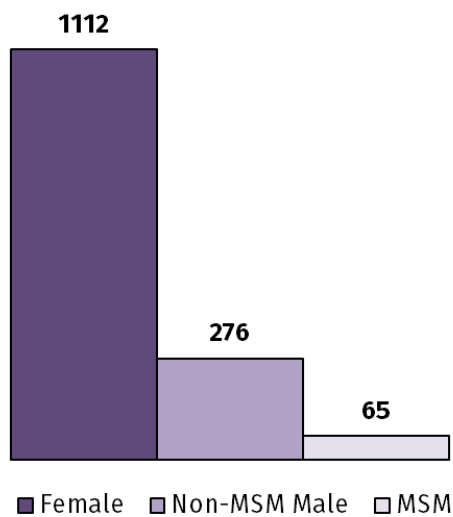
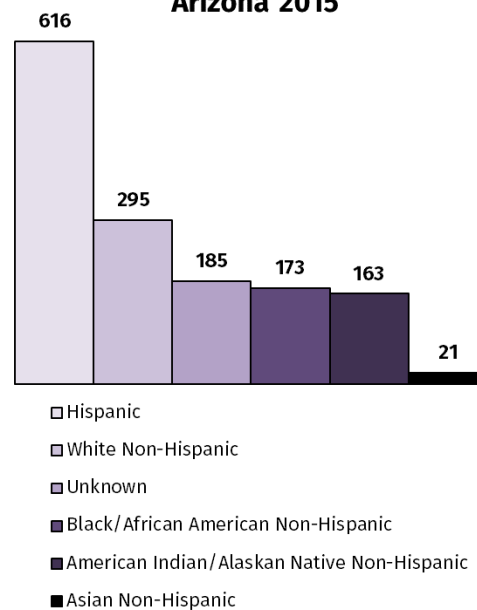


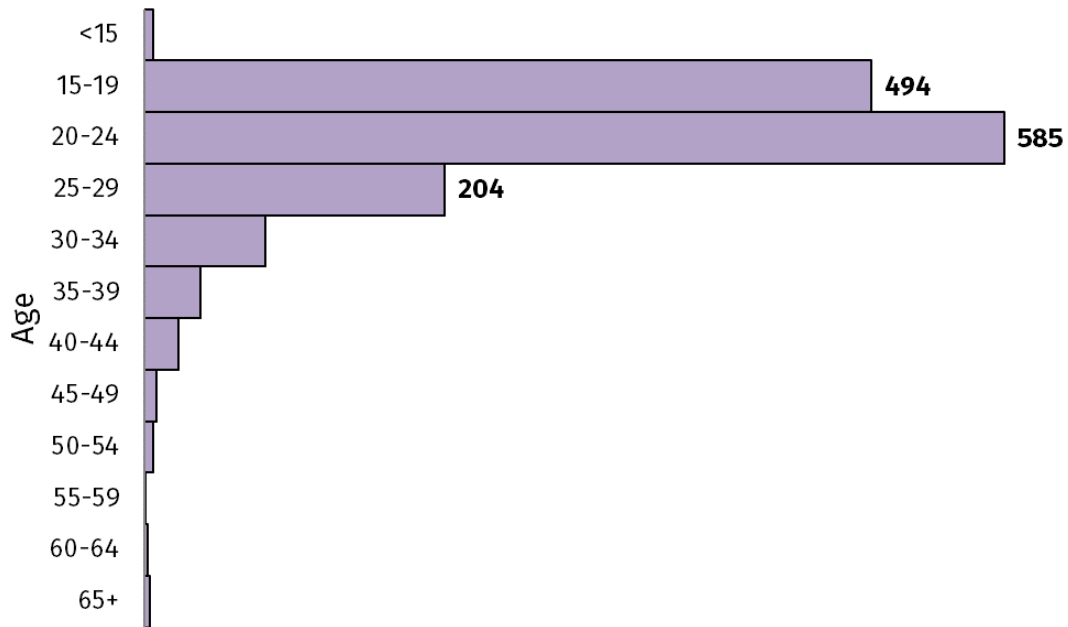
Figure SF20: Repeat Chlamydia Infections by Race/Ethnicity, Arizona 2015



Chlamydia Reinfections by Gender/Sexual Preference and Race/Ethnicity

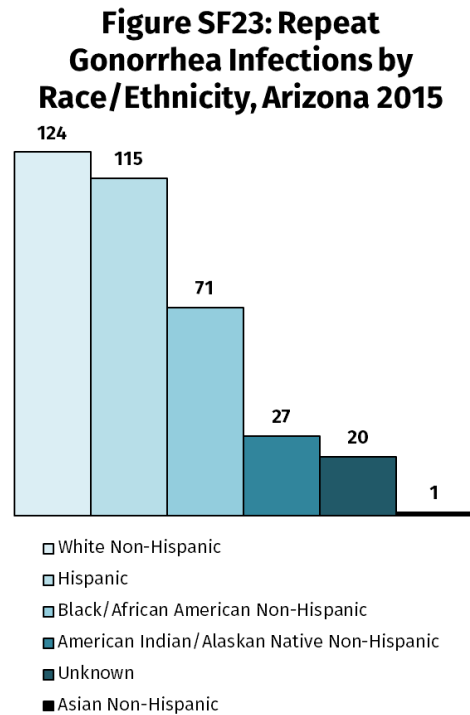
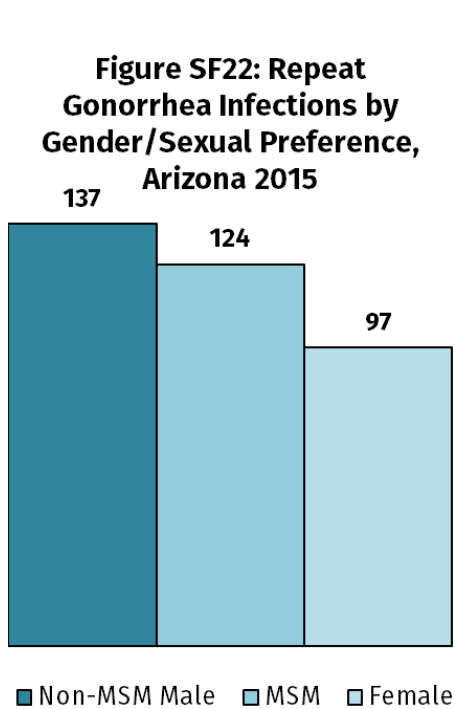
- When broken up by gender and sexual preference, males made up 23% of the re-infected group (MSM and Non-MSM Male combined). Females made up the remaining 77% (Figure SF19).
- Hispanic individuals made up 42% of the repeat chlamydia infections, more than double any other individual race/ethnicity category (Figure SF20).

Figure SF21: Repeat Chlamydia Infections by Age, Arizona 2015



Chlamydia Reinfections by Age Group

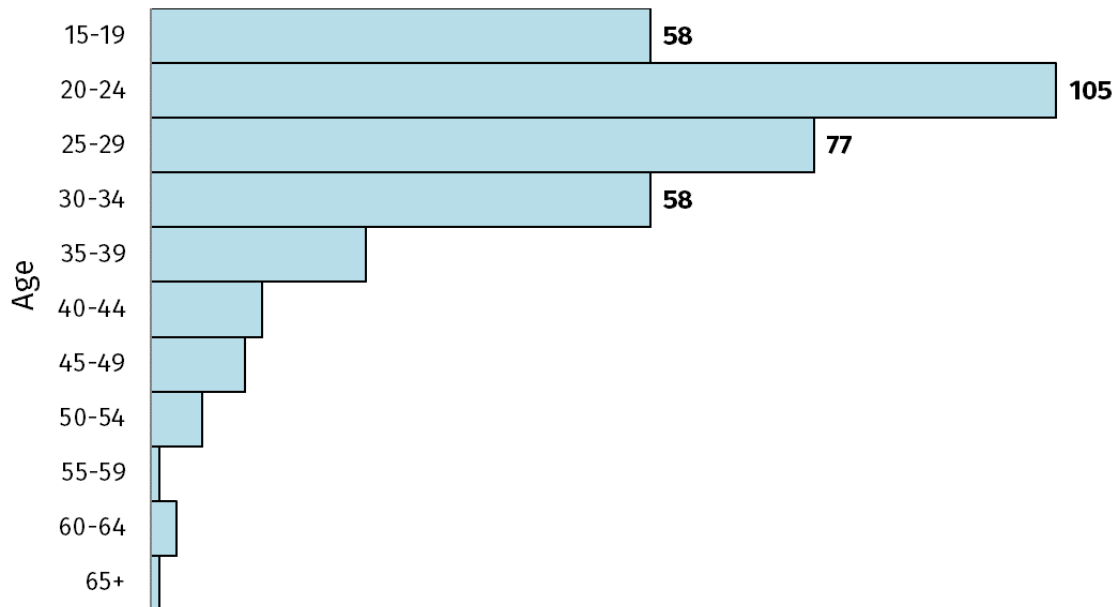
- As expected, youth between the ages of 15 and 29 make up the majority of chlamydia reinfections at 88% (Figure SF21).



Gonorrhea Reinfections by Gender/Sexual Preference and Race/Ethnicity

- When broken up by gender and sexual preference, males made up 73% of the reinfected group (MSM and Non-MSM Male combined). Females made up the remaining 27%. MSM specifically accounted for 35% of the total (Figure SF22).
- White Non-Hispanic individuals made up 35% of the repeat gonorrhea infections and Hispanic individuals made up 32% (Figure SF23).

Figure SF24: Repeat Gonorrhea Infections by Age, Arizona 2015



Gonorrhea Reinfections by Age Group

- Youth between the ages of 15 and 29 make up the majority of STD reinfections at 67% (Figure SF24).
- The 30-34 age group made up 16% of the gonorrhea reinfections, a slightly older group than that of the chlamydia reinfections.

Conclusion

As detailed in this report, STDs affect people of all ages, races, and ethnicities. As in previous years, during 2015, 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 68% of all Arizona cases in 2015. Individuals less than 30 years of age accounted for approximately 43% of all P&S syphilis cases in 2015. Men who have sex with men bore a disproportionate burden of STDs in Arizona. This fact is most apparent with syphilis, where 85% 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 six years, the number of gonorrhea cases has jumped from 3,249 in 2010 to 8,270 in 2015; a 155% 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 590. This corresponds to a 103% increase in reported cases since 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.

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Appendices

Appendix 1: Case and Rate Tables by Gender and County

Age Group	Apache	Cochise & Santa Cruz	Coconino	Gila, Graham & Greenlee	La Paz & Mohave	Maricopa	Navajo	Pima	Pinal	Yavapai	Yuma	Unknown	Arizona
10 - 14	*	*	6	*	*	62	15	23	8	*	*	0	130
15 - 19	94	119	193	72	115	3,581	167	1,094	259	107	152	0	5,953
20 - 24	134	191	264	88	142	5,597	179	1,603	352	110	300	0	8,960
25 - 29	85	98	138	53	54	2,416	135	597	157	55	161	0	3,949
30 - 34	52	52	52	18	24	1,091	48	258	83	18	58	0	1,754
35 - 39	32	15	31	14	16	513	29	117	41	6	40	0	854
40 - 44	20	11	8	*	*	249	12	64	23	*	13	0	410
45 - 49	12	*	*	*	*	141	*	29	*	*	6	0	205
50 - 54	8	*	*	*	*	71	*	17	*	*	*	0	111
55 - 59	*	*	*	*	*	27	*	10	*	*	*	0	52
60 - 64	*	*	*	*	*	*	*	*	*	*	*	0	18
65 and Older	*	*	*	*	*	*	*	*	*	*	*	0	*
Total	440	494	703	253	360	13,759	595	3,816	936	307	738	0	22,401

*Denotes case counts <6. Additional cells may be censored to prevent calculation.
Arizona Department of Health Services - STD Control Program

Age Group	Apache	Cochise & Santa Cruz	Coconino	Gila, Graham & Greenlee	La Paz & Mohave	Maricopa	Navajo	Pima	Pinal	Yavapai	Yuma	Unknown	Arizona
10 - 14	*	*	*	*	*	14	*	*	*	*	*	0	18
15 - 19	20	32	56	23	24	1,074	24	286	73	29	46	0	1,687
20 - 24	25	59	119	34	32	2,400	44	667	123	38	94	0	3,635
25 - 29	18	29	48	18	29	1,524	31	331	83	27	53	0	2,191
30 - 34	6	16	19	13	14	795	18	154	44	19	27	0	1,125
35 - 39	11	*	10	*	*	413	*	86	21	8	9	0	571
40 - 44	*	*	7	*	*	257	*	49	7	*	8	0	344
45 - 49	*	*	6	*	*	175	*	37	8	*	*	0	242
50 - 54	*	*	*	*	*	86	*	25	7	*	*	0	128
55 - 59	*	*	*	*	*	46	*	8	*	*	*	0	62
60 - 64	*	*	*	*	*	21	*	*	*	*	*	0	36
65 and Older	*	*	*	*	*	19	*	*	*	*	*	0	28
Total	92	145	267	95	113	6,824	127	1,654	376	131	243	0	10,067

*Denotes case counts <6
Arizona Department of Health Services - STD Control Program

Table Appendix 3: Reported Female Chlamydia Case Rates per 100,000 Population by Age Group and County, Arizona, 2015

Age Group	Apache	Cochise & Santa Cruz	Cocconino	Gila, Graham & Greenlee	La Paz & Mohave	Maricopa	Navajo	Pima	Pinal	Yavapai	Yuma	Unknown	Arizona
10 - 14	*	*	151.1	*	*	43.8	370.9	75.8	57.8	*	*	N/A	57.9
15 - 19	3,293.6	2,150.0	2,745.8	2,366.9	2,077.3	2,640.1	4,359.2	3,275.6	2,188.8	1,969.8	2,144.5	N/A	2,691.0
20 - 24	5,315.4	3,751.0	2,648.7	2,914.9	2,766.4	3,983.0	5,217.1	3,586.1	3,690.5	2,272.3	4,151.1	N/A	3,796.8
25 - 29	4,032.3	2,061.4	2,981.2	1,932.2	1,040.7	1,676.7	4,501.5	2,061.9	1,447.8	1,135.2	2,516.4	N/A	1,815.2
30 - 34	2,702.7	1,024.6	1,251.2	714.6	488.5	770.2	1,609.7	835.9	651.6	378.5	995.7	N/A	806.8
35 - 39	1,675.4	324.6	827.5	580.7	328.6	380.5	1,090.2	409.6	333.0	125.3	756.0	N/A	474.6
40 - 44	1,028.3	236.8	224.6	*	*	180.2	423.0	222.5	201.2	*	229.6	N/A	195.4
45 - 49	555.0	*	*	*	*	107.7	*	102.5	*	*	107.7	N/A	100.9
50 - 54	332.8	*	*	*	*	52.4	*	52.5	*	*	*	N/A	50.5
55 - 59	*	*	*	*	*	21.5	*	29.3	*	*	*	N/A	24.1
60 - 64	*	*	*	*	*	*	*	*	*	*	*	N/A	9.0
65 and Older	*	*	*	*	*	*	*	*	*	*	*	N/A	*
Total	1,211.6	568.1	1,008.1	517.5	324.4	665.6	1,104.4	747.6	487.2	274.3	743.8	N/A	661.3

*Denotes rounded rates due to low case counts.

Arizona Department of Health Services - STD Control Program

Table Appendix 4: Reported Male Chlamydia Case Rates per 100,000 population by Age Group and County, Arizona, 2015

Age Group	Apache	Cochise & Santa Cruz	Cocconino	Gila, Graham & Greenlee	La Paz & Mohave	Maricopa	Navajo	Pima	Pinal	Yavapai	Yuma	Unknown	Arizona
10 - 14	*	*	*	*	*	9.5	*	*	*	*	*	N/A	7.7
15 - 19	694.4	518.6	922.6	682.7	398.9	752.0	572.0	821.5	567.5	462.7	576.3	N/A	722.6
20 - 24	919.1	991.1	1,325.2	996.2	546.7	1,640.6	1,146.7	1,431.1	916.5	683.1	899.1	N/A	1,436.3
25 - 29	780.2	511.9	916.7	541.8	492.9	1,016.2	916.3	1,049.3	567.8	529.5	700.9	N/A	933.9
30 - 34	285.2	283.1	427.7	391.2	247.9	551.2	581.6	479.7	279.9	381.7	392.3	N/A	493.0
35 - 39	567.3	*	261.0	*	*	308.8	*	300.6	139.4	173.7	155.3	N/A	273.0
40 - 44	*	*	188.0	*	*	188.0	*	172.1	48.6	*	148.2	N/A	162.6
45 - 49	*	*	164.5	*	*	134.4	*	133.6	65.0	*	*	N/A	118.8
50 - 54	*	*	*	*	*	65.6	*	80.5	57.8	*	*	N/A	60.1
55 - 59	*	*	*	*	*	39.5	*	26.1	*	*	*	N/A	31.2
60 - 64	*	*	*	*	*	21.3	*	*	*	*	*	N/A	20.2
65 and Older	*	*	*	*	*	7.5	*	*	*	*	*	N/A	5.7
Total	259.1	166.3	393.0	184.3	100.3	337.8	234.2	334.8	179.2	122.5	233.6	N/A	301.1

*Denotes rounded rates due to low case counts.

Arizona Department of Health Services - STD Control Program

Age Group	Apache	Cochise & Santa Cruz	Coconino	Gila, Graham & Greenlee	La Paz & Mohave	Maricopa	Navajo	Pima	Pinal	Yavapai	Yuma	Unknown	Arizona
10 - 14	*	*	*	*	*	*	*	*	*	*	*	0	*
15 - 19	*	*	*	*	*	365	*	77	17	*	17	0	501
20 - 24	12	17	19	8	9	854	16	162	39	9	19	0	1,164
25 - 29	9	7	15	6	8	643	17	145	29	*	13	0	896
30 - 34	*	*	9	*	*	422	8	62	24	*	6	0	549
35 - 39	*	*	*	*	6	260	*	37	11	*	7	0	334
40 - 44	*	*	*	*	*	189	*	20	7	*	*	0	225
45 - 49	*	*	*	*	*	161	*	25	*	*	*	0	196
50 - 54	*	*	*	*	*	90	*	10	*	*	*	0	112
55 - 59	*	*	*	*	*	43	*	*	*	*	*	0	51
60 - 64	*	*	*	*	*	29	*	*	*	*	*	0	37
65 and Older	*	*	*	*	*	*	*	*	*	*	*	0	*
Total	35	39	57	20	36	3,079	54	550	135	26	68	0	4,099

*Denotes case counts <6. Additional cells may be censored to prevent calculation.
 Arizona Department of Health Services - STD Control Program

Age Group	Apache	Cochise & Santa Cruz	Coconino	Gila, Graham & Greenlee	La Paz & Mohave	Maricopa	Navajo	Pima	Pinal	Yavapai	Yuma	Unknown	Arizona
10 - 14	*	*	*	*	*	11	*	*	*	*	*	0	16
15 - 19	6	8	9	*	8	464	14	120	28	8	10	0	679
20 - 24	24	16	19	*	21	860	44	140	40	*	24	0	1,198
25 - 29	14	9	15	*	9	463	17	101	46	6	10	0	693
30 - 34	*	*	6	6	6	299	11	62	24	*	*	0	431
35 - 39	6	*	*	*	*	153	6	31	11	*	*	0	218
40 - 44	*	*	*	*	*	96	*	22	*	*	*	0	127
45 - 49	*	*	*	*	*	48	*	*	*	*	*	0	64
50 - 54	*	*	*	*	*	23	*	9	*	*	*	0	36
55 - 59	*	*	*	*	*	13	*	*	*	*	*	0	17
60 - 64	*	*	*	*	*	*	*	*	*	*	*	0	*
65 and Older	*	*	*	*	*	*	*	*	*	*	*	0	*
Total	54	44	58	20	49	2,433	96	495	156	25	54	0	3,484

*Denotes case counts <6. Additional cells may be censored to prevent calculation.
 Arizona Department of Health Services - STD Control Program

Table Appendix 7: Reported Male Gonorrhea Case Rates by Age Group and County, Arizona, 2015

Age Group	Apache	Cochise & Santa Cruz	Coconino	Gila, Graham & Greenlee	La Paz & Mohave	Maricopa	Navajo	Pima	Pinal	Yavapai	Yuma	Unknown	Arizona
10 - 14	*	*	*	*	*	*	*	*	*	*	*	N/A	*
15 - 19	*	*	*	*	*	269.1	*	230.6	143.7	*	239.8	N/A	214.6
20 - 24	441.2	286.9	211.6	260.7	175.3	607.7	466.3	362.4	408.9	185.9	262.9	N/A	459.9
25 - 29	390.1	123.3	286.5	213.3	154.2	446.2	566.9	500.8	267.4	*	203.2	N/A	381.9
30 - 34	*	*	202.6	*	*	297.9	268.3	200.9	188.4	*	103.0	N/A	240.6
35 - 39	*	*	*	*	123.2	192.9	*	129.5	89.3	*	132.3	N/A	159.7
40 - 44	*	*	*	*	*	136.8	*	69.5	61.2	*	*	N/A	106.3
45 - 49	*	*	*	*	*	123.0	*	88.4	*	*	*	N/A	96.2
50 - 54	*	*	*	*	*	66.5	*	30.9	*	*	*	N/A	52.6
55 - 59	*	*	*	*	*	34.3	*	*	*	*	*	N/A	25.7
60 - 64	*	*	*	*	*	26.0	*	*	*	*	*	N/A	20.7
65 and Older	*	*	*	*	*	*	*	*	*	*	*	N/A	*
Total	98.6	43.8	83.9	41.2	32.4	148.9	100.2	107.7	70.3	23.2	68.5	N/A	122.6

*Denotes rounded rates due to low case counts
Arizona Department of Health Services - STD Control Program

Table Appendix 8: Reported Female Gonorrhea Case Rates by Age Group and County, Arizona, 2015

Age Group	Apache	Cochise & Santa Cruz	Coconino	Gila, Graham & Greenlee	La Paz & Mohave	Maricopa	Navajo	Pima	Pinal	Yavapai	Yuma	Unknown	Arizona
10 - 14	*	*	*	*	*	197.2	*	*	*	*	*	N/A	7.1
15 - 19	210.2	80.2	128.0	*	5.4	8,393.6	40.2	932.8	1,424.2	100.2	4.3	N/A	306.9
20 - 24	952.0	175.2	190.6	*	14.0	16,050.8	94.4	1,043.1	2,575.7	*	9.5	N/A	507.6
25 - 29	664.1	104.0	324.0	*	5.9	8,520.4	53.9	690.9	3,885.1	79.3	4.3	N/A	318.5
30 - 34	*	*	144.4	303.6	4.1	5,752.2	34.3	394.4	2,140.9	*	*	N/A	198.3
35 - 39	314.1	*	*	*	*	3,229.9	21.0	205.8	1,048.6	*	*	N/A	105.8
40 - 44	*	*	*	*	*	1,879.4	*	152.7	*	*	*	N/A	60.5
45 - 49	*	*	*	*	*	853.8	*	*	*	*	*	N/A	31.5
50 - 54	*	*	*	*	*	329.3	*	74.3	*	*	*	N/A	16.4
55 - 59	*	*	*	*	*	170.1	*	*	*	*	*	N/A	7.9
60 - 64	*	*	*	*	*	*	*	*	*	*	*	N/A	*
65 and Older	*	*	*	*	*	*	*	*	*	*	*	N/A	*
Total	148.7	25.9	83.2	47.6	2.4	2,378.7	19.4	235.9	696.1	24.0	1.6	N/A	102.8

*Denotes rounded rates due to low case counts
Arizona Department of Health Services - STD Control Program

Table Appendix 9: Reported Male Syphilis Cases by Age Group and County, Arizona, 2015

Age Group	Apache	Cochise & Santa Cruz	Coconino	Gila, Graham & Greenlee	La Paz & Mohave	Maricopa	Navajo	Pima	Pinal	Yavapai	Yuma	Unknown	Arizona
10 - 14	*	*	*	*	*	*	*	*	*	*	*	0	*
15 - 19	*	*	*	*	*	13	*	*	*	*	*	0	21
20 - 24	*	*	*	*	*	66	*	26	*	*	*	0	97
25 - 29	*	*	*	*	*	78	*	24	*	*	*	0	105
30 - 34	*	*	*	*	*	60	*	11	*	*	*	0	77
35 - 39	*	*	*	*	*	53	*	19	*	*	*	0	76
40 - 44	*	*	*	*	*	34	*	*	*	*	*	0	40
45 - 49	*	*	*	*	*	39	*	10	*	*	*	0	50
50 - 54	*	*	*	*	*	34	*	*	*	*	*	0	40
55 - 59	*	*	*	*	*	19	*	*	*	*	*	0	24
60 - 64	*	*	*	*	*	8	*	*	*	*	*	0	9
65 and Older	*	*	*	*	*	*	*	*	*	*	*	0	*
Total	*	*	6	*	*	408	*	107	7	*	*	0	543

*Denotes case counts <6. Additional cells censored to prevent calculation.
Arizona Department of Health Services - STD Control Program

Table Appendix 10: Reported Female Syphilis Cases by Age Group and County, Arizona, 2015

Age Group	Apache	Cochise & Santa Cruz	Coconino	Gila, Graham & Greenlee	La Paz & Mohave	Maricopa	Navajo	Pima	Pinal	Yavapai	Yuma	Unknown	Arizona
10 - 14	*	*	*	*	*	*	*	*	*	*	*	0	*
15 - 19	*	*	*	*	*	*	*	*	*	*	*	0	*
20 - 24	*	*	*	*	*	14	*	*	*	*	*	0	16
25 - 29	*	*	*	*	*	7	*	*	*	*	*	0	9
30 - 34	*	*	*	*	*	*	*	*	*	*	*	0	*
35 - 39	*	*	*	*	*	7	*	*	*	*	*	0	8
40 - 44	*	*	*	*	*	*	*	*	*	*	*	0	*
45 - 49	*	*	*	*	*	*	*	*	*	*	*	0	*
50 - 54	*	*	*	*	*	*	*	*	*	*	*	0	*
55 - 59	*	*	*	*	*	*	*	*	*	*	*	0	*
60 - 64	*	*	*	*	*	*	*	*	*	*	*	0	*
65 and Older	*	*	*	*	*	*	*	*	*	*	*	0	*
Total	*	*	*	*	*	39	*	*	*	*	*	0	47

*Denotes case counts <6. Additional cells censored to prevent calculation.
Arizona Department of Health Services - STD Control Program

Table Appendix 11: Reported Male Syphilis Case Rates by Age Group and County, Arizona, 2015

Age Group	Apache	Cochise & Santa Cruz	Coconino	Gila, Graham & Greenlee	La Paz & Mohave	Maricopa	Navajo	Pima	Pinal	Yavapai	Yuma	Unknown	Arizona
10 - 14	*	*	*	*	*	9.1	*	*	*	*	*	N/A	*
15 - 19	*	*	*	*	*	45.1	*	55.8	*	*	*	N/A	9.0
20 - 24	*	*	*	*	*	52.0	*	76.1	*	*	*	N/A	38.3
25 - 29	*	*	*	*	*	41.6	*	34.3	*	*	*	N/A	44.8
30 - 34	*	*	*	*	*	39.6	*	66.4	*	*	*	N/A	36.3
35 - 39	*	*	*	*	*	24.9	*	36.1	*	*	*	N/A	18.9
40 - 44	*	*	*	*	*	29.9	*	25.9	*	*	*	N/A	24.5
45 - 49	*	*	*	*	*	16.3	*	*	*	*	*	N/A	18.8
50 - 54	*	*	*	*	*	8.1	*	*	*	*	*	N/A	12.1
55 - 59	*	*	*	*	*	*	*	*	*	*	*	N/A	5.0
60 - 64	*	*	*	*	*	*	*	*	*	*	*	N/A	*
65 and Older	*	*	*	*	*	20.6	*	21.8	3.4	*	*	N/A	16.5
Total			8.8										

*Denotes rounded rates due to low case counts
 Arizona Department of Health Services - STD Control Program

Table Appendix 12: Reported Female Syphilis Case Rates by Age Group and County, Arizona, 2015

Age Group	Apache	Cochise & Santa Cruz	Coconino	Gila, Graham & Greenlee	La Paz & Mohave	Maricopa	Navajo	Pima	Pinal	Yavapai	Yuma	Unknown	Arizona
10 - 14	*	*	*	*	*	*	*	*	*	*	*	N/A	*
15 - 19	*	*	*	*	*	10.0	*	*	*	*	*	N/A	6.8
20 - 24	*	*	*	*	*	4.9	*	*	*	*	*	N/A	4.1
25 - 29	*	*	*	*	*	*	*	*	*	*	*	N/A	*
30 - 34	*	*	*	*	*	5.2	*	*	*	*	*	N/A	3.9
35 - 39	*	*	*	*	*	*	*	*	*	*	*	N/A	*
40 - 44	*	*	*	*	*	*	*	*	*	*	*	N/A	*
45 - 49	*	*	*	*	*	*	*	*	*	*	*	N/A	*
50 - 54	*	*	*	*	*	*	*	*	*	*	*	N/A	*
55 - 59	*	*	*	*	*	*	*	*	*	*	*	N/A	*
60 - 64	*	*	*	*	*	*	*	*	*	*	*	N/A	*
65 and Older	*	*	*	*	*	1.9	*	*	*	*	*	N/A	1.4
Total													

*Denotes rounded rates due to low case counts
 Arizona Department of Health Services - STD Control Program