

Columbia/Boone County Department of Public Health and Human Services

2015 Sexually Transmitted Disease Summary



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Public Health & Human Services

Published September 2016

2015 Sexually Transmitted Disease Summary

Boone County, Missouri

The 2015 Boone County Sexually Transmitted Disease Summary includes surveillance statistics for three reportable sexually transmitted diseases (STDs) in Boone County, Missouri: chlamydia, gonorrhea and syphilis. While HIV is a reportable STD, it is not addressed in this report because of low case numbers and the need to maintain confidentiality. The Missouri Department of Health & Senior Services releases an annual report, The Epidemiological Profiles <http://health.mo.gov/data/hivstdaids/> (Missouri Department of Health & Senior Services, 2014), which addresses HIV in Missouri and by region.

Sexually transmitted diseases are typically the most frequently reported communicable diseases for Boone County, with chlamydia being the most frequently reported STD. This report looks at both chlamydia and gonorrhea reported in Boone County by case counts (the total number of cases reported), rates per 100,000, age group, gender and race. Race is put into three categories: white, black, and other/unknown. Multi-race, Asian, Indian, other, and unknown are reflected in the same category and not singled out for analysis because of low case counts and the need to maintain for confidentiality. Syphilis is minimally addressed in this report due to low number of reports in Boone County and also the need to maintain confidentiality.

Table 1:

Reported STDs by Count and Incidence Rate per 100,000 Population Boone County and Missouri 2015				
Diagnosis	Boone County Count	Boone County Rate	Missouri Count	Missouri Rate
Chlamydia	1103	638.6	28,948	477.4
Gonorrhea	277	160.4	8942	147.5
Syphilis (all stages)	17	9.8	554	9.13
Total	1397	808.8	38444	634.0

Technical Notes

Missouri's communicable disease reporting rule, 19 CSR 20-20.020, requires the reporting of chlamydia and gonorrhea cases within three days, and syphilis, including congenital syphilis, within one day to the local public health authority or the Missouri Department of Health and Senior Services (MDHSS). Demographic information, laboratory results, and treatment information are collected on standardized forms and laboratory reports (Missouri Department of Health & Senior Services, 2014).

The gonorrhea, chlamydia, and syphilis cases analyzed in this report are residents of Boone County with the condition reported between weeks 1 and 52 of the Centers for Disease Control and Prevention (CDC) 2015 calendar (Jan 4, 2015-January 2, 2016). This is the same methodology used by the MDHSS and

CDC. Rates were calculated using 2014 estimated Boone County and Missouri population (Population MICA).

Data Sources and Limitations

The data in this report was submitted to either the local public health agency or the MDHSS by an electronic laboratory report or a disease case report completed by the provider. In the case of electronic lab reporting, reports may be incomplete and usually lack client home address, race, and treatment information. When a disease/condition is reported with the home address missing, the disease is included in the case counts of the county where the laboratory is located per policy of the MDHSS. For the last several years, the number of case reports reported electronically by laboratories has increased, limiting the information received on STD cases. This is a trend that has been identified throughout the United States. Unknown race comprises the largest single category of the other/unknown race category. This could be attributed to a large number of electronic lab reports with incomplete information, along with a lack of clinics recording race.

Columbia, the largest city in Boone County, is home to several colleges and a university. Nearly one fourth of Boone County's population is between the ages of 15 and 24. When getting tested for a sexually transmitted disease, students are encouraged to use their local address in order to determine the true burden of disease in Boone County. When an out of county address is given, the disease is counted in that area's statistics, not Boone County.

The case numbers in this report represent only those tested and reported. This may underestimate the true burden of infection as not all individuals seek care due to a lack of symptoms and some individuals may receive treatment without being tested. In some situations, a sexually transmitted disease may be identified through programs designed primarily for women, such as women's health and family planning clinics. Although the majority of chlamydia infections in males are asymptomatic, there are no guidelines for testing asymptomatic men. In some cases, partners of known individuals with infections may be treated without testing, depending on the provider or clinic protocol.

Case counts and incidence rates are both reported, and presented, when possible. While it is important to look at the incidence rates to determine the impact to a race, gender, and/or age group, case counts are also important because they represent a case load for a clinic. This report examines both gonorrhea and chlamydia numbers and rates, but also looks at the combined number of STD's. Analyzing all the sexually transmitted diseases combined can be important for planning educational strategies and targeting prevention efforts.

All rates in this report are calculated using 2014 estimated Boone County population. When reviewing trends, 10 years of trend data is used, consistent with the Missouri Department of Health and Senior Services analysis.

In 2014, Boone County had the third highest rate of chlamydia in Missouri, and the ninth highest rate of gonorrhea in Missouri.

The **2015** Boone County STD rate rankings within Missouri are:

Boone County has the **5th** highest rate of chlamydia preceded in order by:

- St. Louis City
- Jackson County
- Pemiscot County
- Butler County

Boone County has the **11th** highest rate of gonorrhea, preceded in order by:

- St. Louis City
- Jackson County
- Butler County
- Pemiscot County
- Scott County
- Cole County
- St. Louis County
- Dunklin County
- Greene County
- Cape Girardeau County

Boone County has the **14th** highest rate of syphilis cases (all stages), preceded in order by:

- St. Louis City
- Grundy County
- Jackson County
- St. Louis County
- Vernon County
- Daviess County
- Butler County
- Laclede County
- Caldwell County
- Taney County
- Ozark County
- Clay County
- Clinton County

Table 2:

Percent Change of STD Rates for Boone County from 2014 to 2015			
Condition	2014 (Rate per 100,000)	2015 (Rate per 100,000)	Percent Change
Chlamydia	649.6	638.6	1.7% decrease
Gonorrhea	129.4	160.4	24% increase
Syphilis (all stages)	7.6	9.8	29% increase
Total	786.9	808.8	2.8 % increase

Table 2 shows a slight (1.7 %) decrease in chlamydia rates for 2015, but a significant increase for both gonorrhea and syphilis. The increase in gonorrhea and syphilis shown in Boone County mirrors the recent trend in both Missouri and throughout the nation.

Table 3 and Figure 1 look at Boone County's combined chlamydia, gonorrhea and syphilis case counts and rates by age group, race and sex, while Figure 2 shows the highest percentage of gonorrhea and chlamydia cases are found in 20-24 year olds. Figure 3 shows the racial breakdown of the reported STD rates by the age groups with the highest rates. Table 4 provides a summary of STDs reported in 2015 in Boone County by case count, rate per 100,000, race and sex.

Table 3:

2015 Boone County
Sexually Transmitted Disease Case Counts and Rates per 100,000
by Age Group and Sex

Age Group	Female Count	Female Rate	Male Count	Male Rate	Total Count	Total Rate
10-14	*	40.3	*	20.2	*	30.3
15-19	247	3256.9	89	1353.6	336	2373.0
20-24	379	2702.7	230	1774.6	609	2256.9
25-29	137	1934.5	97	1329.5	234	1627.5
30-34	54	886.8	56	914.0	110	900.5
35-39	18	356.8	32	634.7	50	495.7
40-44	11	223.0	14	298.5	25	259.8
45-54	8	80.9	13	142.3	21	110.4
55-64	0	0.0	8	93.3	8	43.7
65+	0	0.0	*	12.6	*	5.5
Total (all ages)	856	960.5	541	647.2	1397	808.8

*Counts of less than five are suppressed for confidentiality

Figure 1:

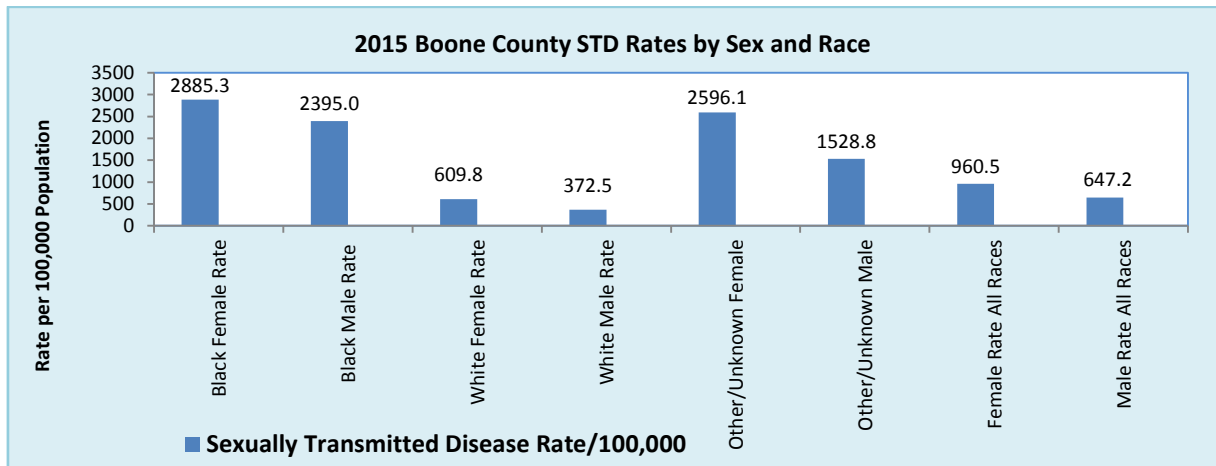


Figure 2:

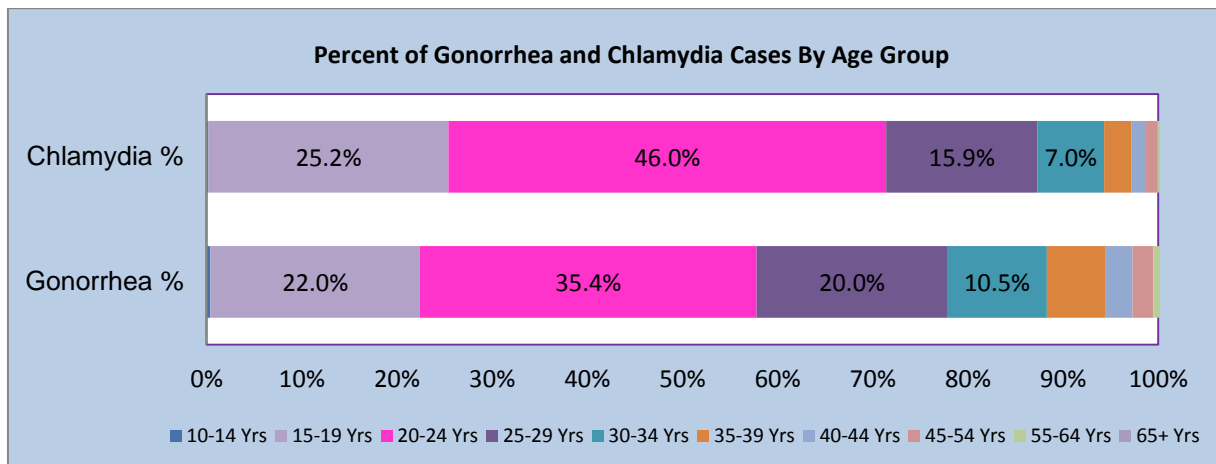


Figure 3:

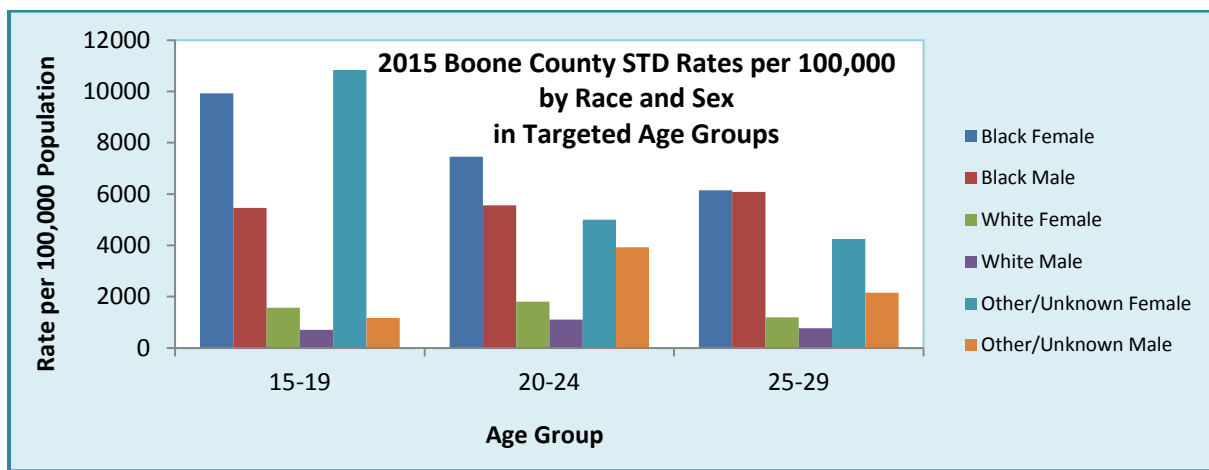


Table 4:

**2015 Boone County Sexually Transmitted Disease Case Counts and Rates per 100,000
By Age Group, Race, and Sex**

Age Group	Black Female Count	Black Female Rate	Black Male Count	Black Male Rate	Black Total Count	Black Total Rate	White Female Count	White Female Rate	White Male Count	White Male Rate	White Total Count	White Total Rate	Other/Unknown Female Count	Other/Unknown Female Rate	Other/Unknown Male Count	Other/Unknown Male Rate	Other/Unknown Total Rate	Total Count	Total Rate
10-14	*	273.6	*	122.1	*	193.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0	*	30.3
15-19	95	10248.1	48	5574.9	143	7997.8	108	1727.7	37	688.9	145	1247.6	44	10837.4	*	1166.2	6408.5	336	2373.0
20-24	112	7521.8	76	5701.4	188	6661.9	218	1886.8	122	1128.3	340	1520.1	49	5000.0	32	3926.4	4512.5	609	2256.9
25-29	44	6145.3	43	6222.9	87	6183.4	75	1262.2	44	716.5	119	984.9	18	4245.3	10	2155.2	3153.2	234	1627.5
30-34	13	1981.7	18	3249.1	31	2562.0	34	676.5	30	578.5	64	626.7	7	1719.9	8	2067.2	1889.2	110	900.5
35-39	*	775.2	16	3100.8	20	1938.0	10	239.1	7	167.9	17	203.6	*	1152.7	9	2514.0	1844.0	50	495.7
40-44	*	843.9	*	497.5	6	684.9	6	147.3	8	203.0	14	174.7	*	259.1	*	1149.4	681.2	25	259.8
45-54	*	100.4	*	485.4	5	274.7	5	59.9	9	114.1	14	86.2	*	364.3	0	0.0	205.5	21	110.4
55-64	0	0.0	*	420.8	*	205.8	0	0.0	*	52.7	*	24.7	0	0.0	*	361.0	161.0	8	43.7
65+	0	0.0	0	0.0	0	0.0	0	0.0	*	13.6	*	6.0	0	0.0	0	0.0	0.0	*	5.5
Total (all ages)	275	2885.3	211	2395.0	486	2649.8	456	609.8	262	372.5	718	494.8	125	2596.1	68	1528.8	2083.6	1397	808.8

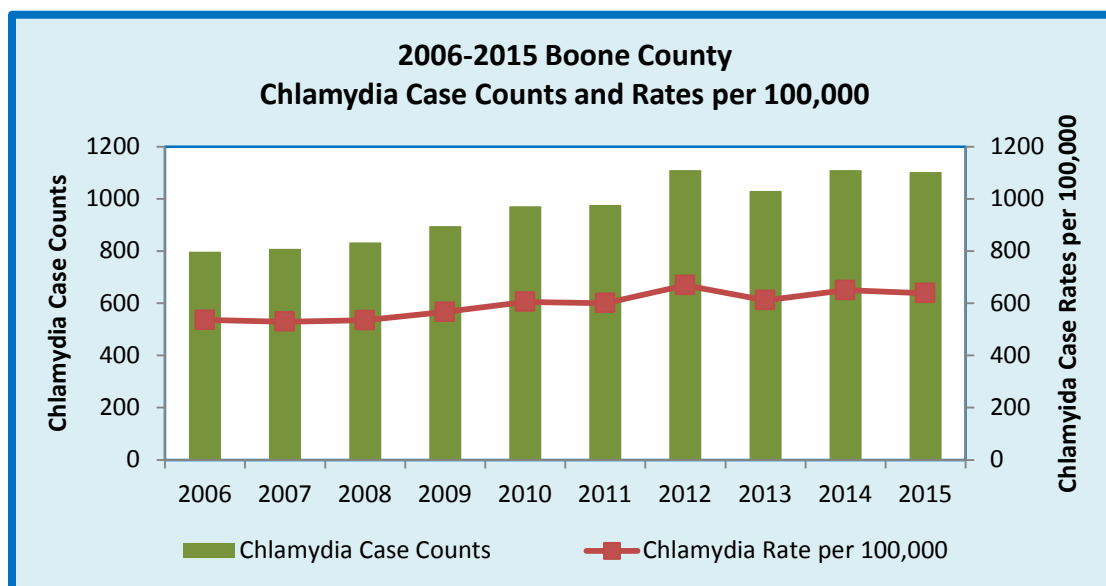
**Counts of less than five are suppressed for confidentiality*

Chlamydia

Chlamydia is a common STD caused by *Chlamydia trachomatis*. It infects both men and women. Chlamydia infections can cause serious, permanent damage to a woman's reproductive system, making it difficult or impossible for her to get pregnant. While chlamydia is the most frequently reported bacterial sexually transmitted disease in the United States, many cases go undiagnosed because most people with chlamydia are asymptomatic and do not seek testing. Chlamydia is most common among young people.

In 2015, the 1,103 cases of chlamydia accounted for 79% of all of the reported sexually transmitted diseases (gonorrhea, chlamydia and syphilis). As in previous years, Boone County reported a higher incidence of chlamydia than the state of Missouri, and as mentioned previously, ranks as the fifth highest county rate in the state. Figure 4 shows both the chlamydia case counts for the past 10 years and the incidence rates per 100,000.

Figure: 4



Overall rates of chlamydia are higher in women than men (Figures 5, 6, and 7) and the rates are significantly higher in blacks than whites as shown in Figures 6 and 7. All three figures highlight the age groups with the highest rates of chlamydia, which are consistently 15-19 years, 20-24 years, and 25-29 years. Table 5 shows the 2015 case counts and rates for Boone County by age group, sex, and race.

Table 5:

**2015 Boone County Chlamydia Case Counts and Rates per 100,000
by Age Group, Race, and Sex**

Age Group	Black Female Count	Black Female Rate	Black Male Count	Black Male Rate	Black Total Count	Black Total Rate	White Female Count	White Female Rate	White Male Count	White Male Rate	White Total Count	White Total Rate	Other/Unknown Female Count	Other/Unknown Female Rate	Other/Unknown Male Count	Other/Unknown Male Rate	Other/Unknown Total Rate	Total Count	Total Rate
10-14	*	136.8	*	122.1	*	129.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0	*	20.2
15-19	73	7874.9	35	4065.0	108	6040.3	101	1615.7	31	577.2	132	1135.8	32	7881.8	*	1166.2	4806.4	276	1949.3
20-24	95	6380.1	55	4126.0	150	5315.4	195	1687.7	97	897.1	292	1305.5	43	4387.8	22	2699.4	3621.2	507	1878.9
25-29	34	4748.6	24	3473.2	58	4122.2	61	1026.6	31	504.8	92	761.4	16	3773.6	9	1939.7	2815.3	175	1217.1
30-34	9	1372.0	9	1624.5	18	1487.6	26	517.3	20	385.7	46	450.5	7	1719.9	6	1550.4	1637.3	77	630.3
35-39	*	581.4	9	1744.2	12	1162.8	8	191.3	*	96.0	12	143.7	*	576.4	6	1676.0	1134.8	32	317.2
40-44	*	632.9	*	497.5	5	570.8	5	122.8	*	101.5	9	112.3	0	0.0	*	574.7	272.5	16	166.3
45-54	1	100.4	*	364.1	*	219.8	5	59.9	*	25.4	7	43.1	*	364.3	0	0.0	205.5	13	68.3
55-64	0	0.0	*	140.3	*	68.6	0	0.0	*	26.4	*	12.3	0	0.0	*	361.0	161.0	*	21.9
65+	0	0.0	0	0.0	0	0.0	0	0.0	*	13.6	*	6.0	0	0.0	0	0.0	0.0	*	5.5
Total (all ages)	219	2297.8	139	1577.8	358	1951.9	401	536.3	192	273.0	593	408.6	102	2118.4	50	1124.1	1640.9	1103	638.6

*Counts of less than five are suppressed for confidentiality

Figure 5:

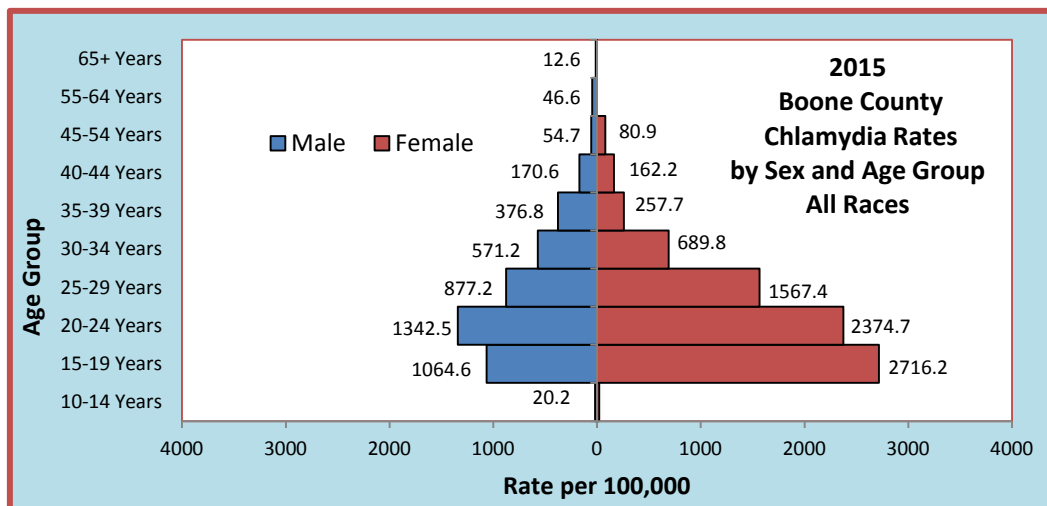


Figure 6:

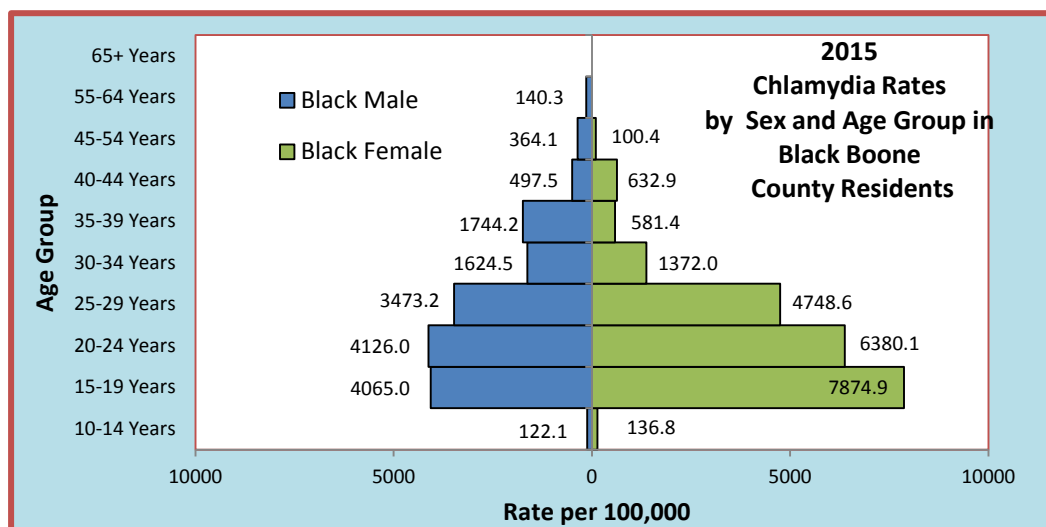
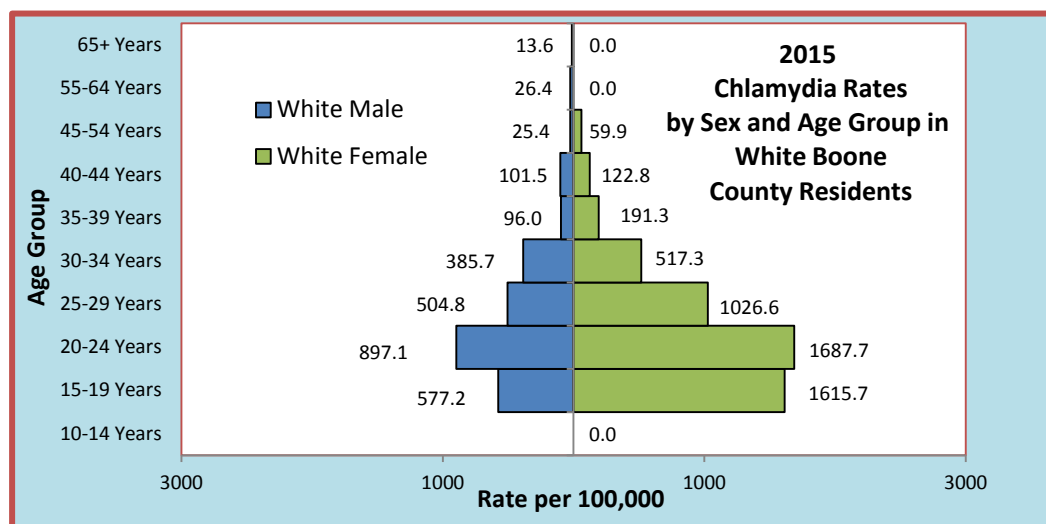


Figure 7:



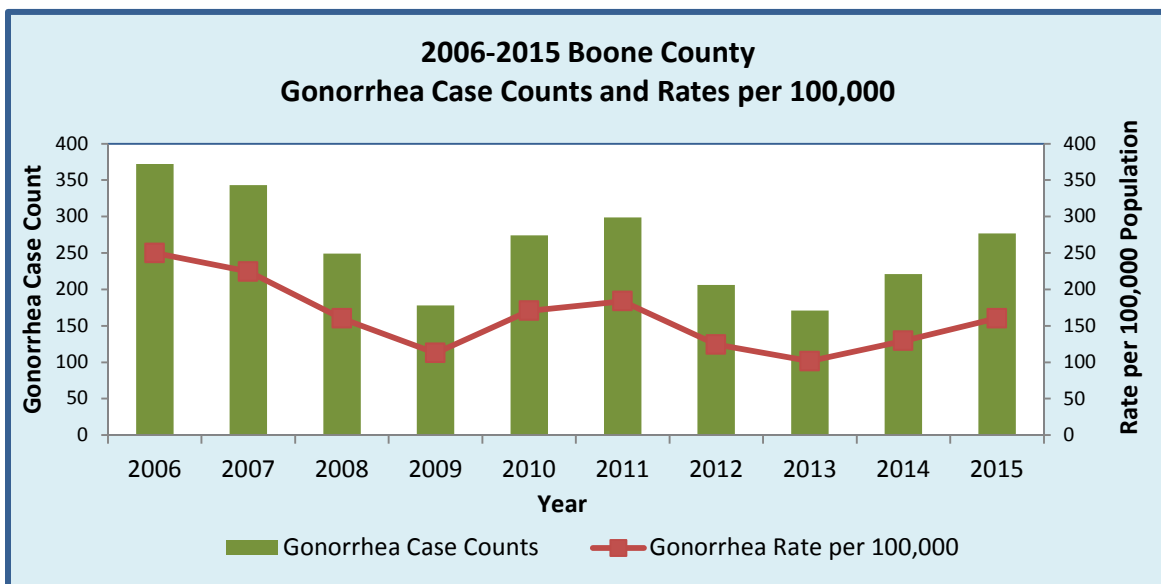
Gonorrhea

Gonorrhea is a sexually transmitted disease that infects both men and women and is caused by *Neisseria gonorrhoeae*. Gonorrhea is a very common infectious disease. The CDC estimates that annually, 820,000 people in the United States are newly infected with gonorrhea. Less than half of these new infections are reported to local and state health departments, as many of those infected are treated without testing and lab confirmation. Most women are asymptomatic, and when signs and symptoms are present, they are often mild and nonspecific and can be misdiagnosed as a bladder or vaginal infection. Many men with gonorrhea also have asymptomatic infections. When present, signs and symptoms of urethral infection in males include a discharge which usually appears one to fourteen days after infection. Untreated infection can cause serious and permanent health problems in both women and men. Nationally, the CDC estimates that 570,000 of those infected with gonorrhea are between 15-24 years of age (Centers for Disease Control and Prevention, 2014).

In Boone County, 277 gonorrhea cases were reported in 2015. This is a 25% increase over the 221 reported cases in 2014. Boone County has the 11th highest rate in Missouri for gonorrhea (160.4 per 100,000 population), and is slightly higher than the gonorrhea rate for Missouri (147.5 per 100,000 population).

Both the gonorrhea case counts and the incidence rates per 100,000 for the past 10 years are shown in Figure 8.

Figure 8:



While Boone County gonorrhea rates increased in 2015, they are lower than chlamydia rates. In 2015, the gonorrhea rates are higher among blacks, and in most age groups the rates are higher in males than females as shown in Figures 9, 10, and 11. Table 6 shows the 2015 gonorrhea case counts and rates for Boone County by race, sex and age group.

Figure 9:

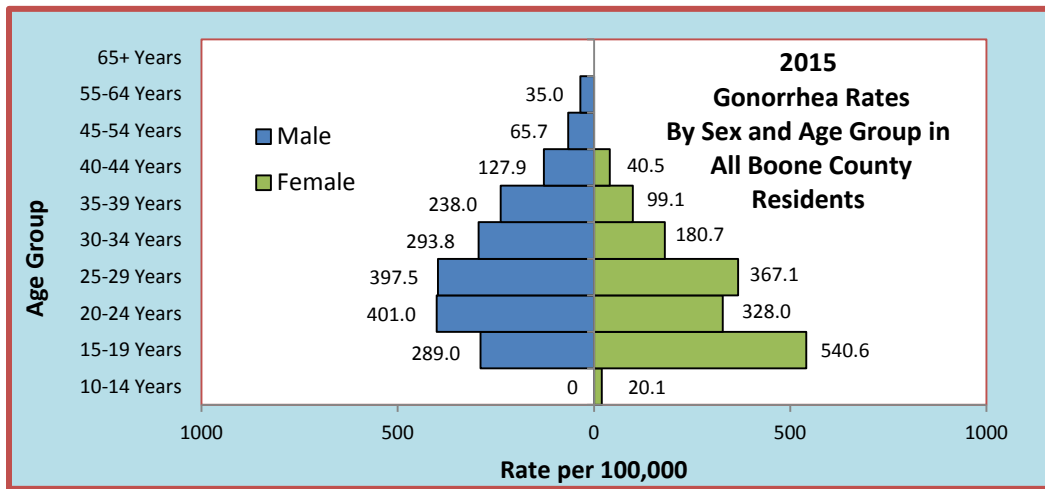


Figure 10:

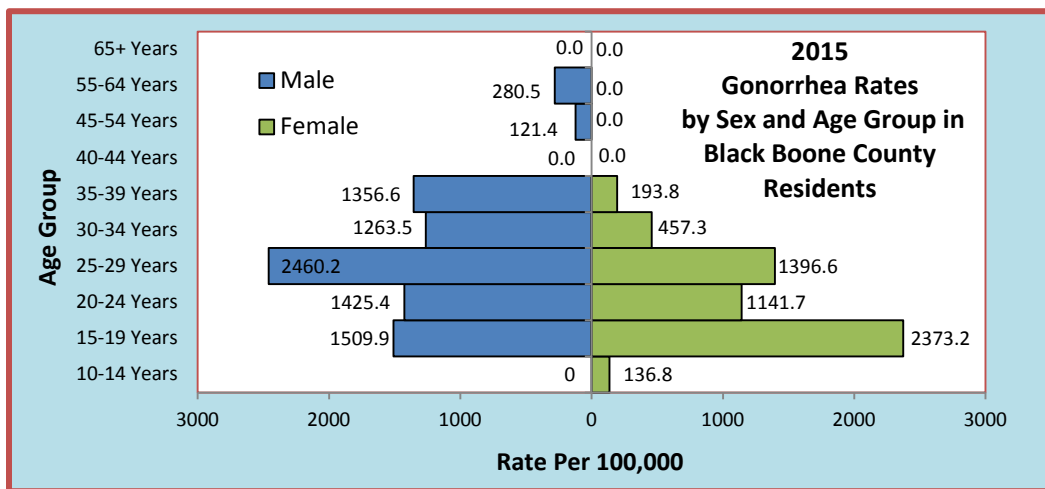


Figure 11:

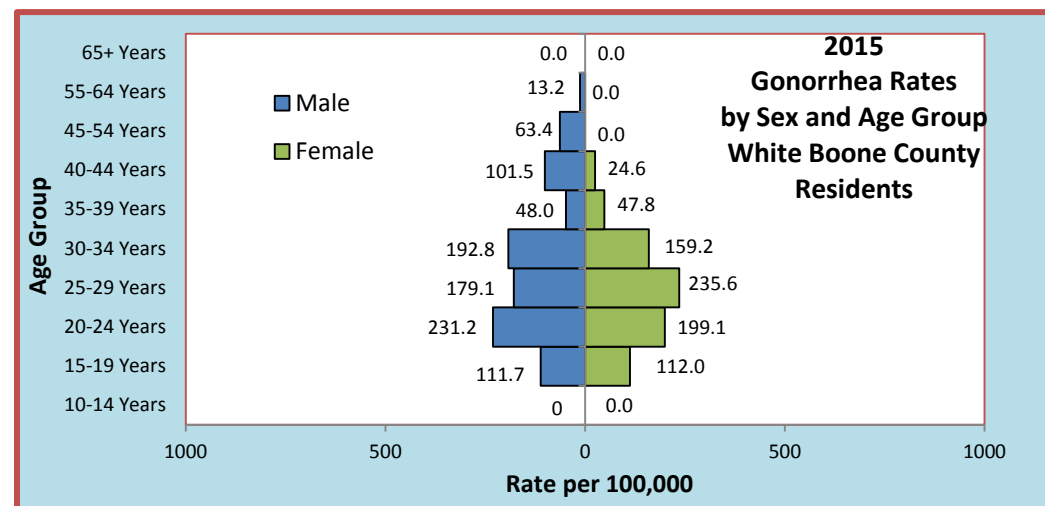


Table 6:

**2015 Boone County Gonorrhea Case Counts and Rates per 100,000
By Age Group, Race, and Sex**

Age Group	Black Female Count	Black Female Rate	Black Male Count	Black Male Rate	Black Total Count	Black Total Rate	White Female Count	White Female Rate	White Male Count	White Male Rate	White Total Count	White Total Rate	Other/Unknown Female Count	Other/Unknown Female Rate	Other/Unknown Male Count	Other/Unknown Male Rate	Other/Unknown Total Rate	Total Count	Total Rate
10-14	*	136.8	0	0.0	*	64.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0	1	10.1
15-19	22	2373.2	13	1509.9	35	1957.5	7	112.0	6	111.7	13	111.9	12	2955.7	0	0.0	1602.1	60	423.8
20-24	17	1141.7	19	1425.4	36	1275.7	23	199.1	25	231.2	48	214.6	6	612.2	8	981.6	779.9	98	363.2
25-29	10	1396.6	17	2460.2	27	1919.0	14	235.6	11	179.1	25	206.9	*	471.7	*	215.5	337.8	55	382.5
30-34	*	457.3	7	1263.5	10	826.4	8	159.2	10	192.8	18	176.3	0	0.0	*	258.4	125.9	29	237.4
35-39	*	193.8	7	1356.6	8	775.2	*	47.8	*	48.0	*	47.9	*	576.4	*	838.0	709.2	17	168.5
40-44	0	0.0	0	0.0	0	0.0	*	24.6	*	101.5	5	62.4	*	259.1	*	574.7	408.7	8	83.1
45-54	0	0.0	*	121.4	*	54.9	0	0.0	5	63.4	5	30.8	0	0.0	0	0.0	0.0	6	31.5
55-64	0	0.0	*	280.5	*	137.2	0	0.0	*	13.2	*	6.2	0	0.0	0	0.0	0.0	3	16.4
65+	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0	0	0.0
Total (all ages)	54	566.6	66	749.1	120	654.3	55	73.6	64	91.0	119	82.0	23	477.7	15	337.2	410.2	277	160.4

*Counts of less than five are suppressed for confidentiality

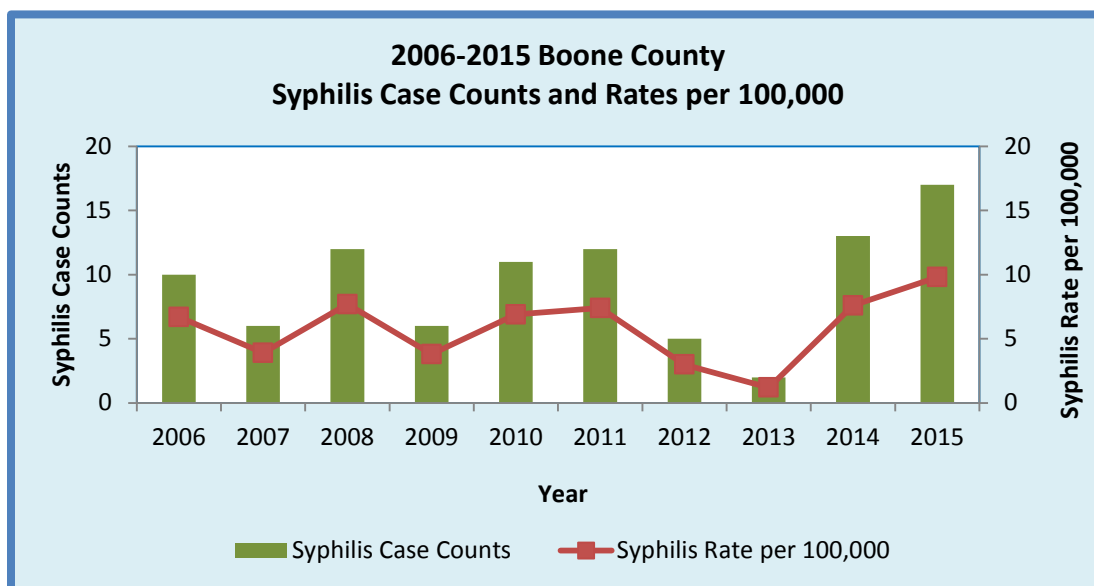
Syphilis

Syphilis is a sexually transmitted disease caused by *Treponema pallidum*. Syphilis can cause long term complications if not adequately treated. It is transmitted from person to person by direct contact with a syphilitic sore, known as a chancre. Pregnant women with the disease can transmit syphilis to their unborn child (Centers for Disease Control and Prevention, 2014).

Symptoms of syphilis will go away with or without treatment, but without treatment, the infection will progress to late stages of the disease. In the late stages of syphilis, the disease may damage the internal organs, including the brain, nerves, eyes, heart, blood vessels, liver, bones, and joints. Syphilis can invade the nervous system at any stage of infection, and cause a wide variety of symptoms including headaches, altered behavior, and movement problems.

Cases of reported syphilis have been increasing in Boone County. In 2014, there were 13 syphilis cases reported, with an incidence rate of 7.6 per 100,000. There were 17 cases reported in 2015, with a rate of 9.8 per 100,000. As mentioned previously, syphilis will not be analyzed by race, gender, and age group because of low total counts. Figure 12 compares the county counts and rates from 2006 through 2015.

Figure 12:



Reporters:

All communicable disease reports are counted in the county of residence for the patient, despite where the testing occurred. In 2015, sexually transmitted diseases in Boone County residents were reported from a total of 70 different providers and clinics in the United States, with the majority of cases reported by local Boone County providers. Six sites in Boone County reported 79.5% of the cases. Table 7 provides the list of Boone County sites that reported STDs with their corresponding percentage of the total reported.

Table 7:

Reporter	Number of cases reported	Percent of Total Reported
University of Missouri Health Care System (Includes all hospitals, clinics, and MU Student Health)	501	35.9%
Columbia/Boone County Public Health & Human Services	271	19.4%
Planned Parenthood of Columbia	136	9.7%
Rain of Central Missouri Women's Health Associates	121	8.7%
Other Reporters	81	5.6%
	287	19.9%
Total	1344	100%

Summary

Sexually transmitted diseases are often the most reported communicable diseases in Boone County, only surpassed by influenza in some years. This report provides the breakdown of gonorrhea and chlamydia case counts and rates by sex, race and age group. It also analyzes gonorrhea, chlamydia, and syphilis combined. A combined other/unknown race group is included, but does not focus on the higher rates within that category. Of the 193 other/unknown cases reported in 2015, 89 are "unknown" race. The remaining 104 include Asian, Indian, Multirace, and other. Currently, efforts are underway to lower the number of reports with "unknown" race to give a clearer picture of the STD rates of other races in Boone County.

High STD rates in Boone County may be a result of several factors: access to multiple testing facilities for sexually transmitted diseases, a large number of 15-24 year olds, and multiple colleges and a university in Boone County.

This report highlights the disparities between whites and blacks, and the disparities between age groups in both races. Some of those disparities include:

- Chlamydia rates in females in Boone County are almost twice the rate as in males.
- In 2015, the rate of reported chlamydia and gonorrhea cases remained highest among blacks, with chlamydia rates highest in black females.
- The gonorrhea rate has increased in the last two years.
- Black men reported the highest gonorrhea case rate, with the 25-29 age group seeing the highest rate. The increased availability of urine screening may have increased the number of males being tested.

When looking at the reportable STDs in 15 to 24 year olds, CDC states “regardless of race or gender, data show that sexually active adolescents and young adults are at increased risk for STDs when compared to older adults. Acknowledging disparities in STD rates is one of the first steps in empowering affected communities to focus on the problem and helping the public health community direct prevention and treatment resources appropriately” (Centers for Disease Control and Prevention, 2014). It is the aim of this report to illuminate such disparities in order to improve the health of Boone County citizens.

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Population MICA. (n.d.). Retrieved September 2016, from Missouri Department of Health and Senior Services: <http://health.mo.gov/data/mica/PopulationMICA/>