

2016 SEXUALLY TRANSMITTED DISEASES SUMMARY

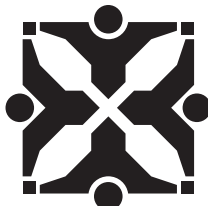
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Columbia/Boone
County Department
of Public Health and
Human Services



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In 2016, sexually transmitted diseases continued to be the most frequently reported communicable disease in Boone County with 1,368 cases reported. Chlamydia was the most commonly reported STD in Boone County with 1,167 cases reported (Table 1). The 2016 chlamydia rate of 667 cases per 100,000 showed a slight increase from 2015 (Table 2) while both gonorrhea and syphilis case rates decreased in 2016. Overall, STD rates were highest in black females (Figure 1).

The 2016 Sexually Transmitted Disease Summary for Boone County, Missouri includes surveillance statistics for three reportable sexually transmitted diseases (STDs) in Boone County, Missouri: chlamydia, gonorrhea and syphilis.

Table 1:

Reported STDs by Count and Incidence Rate per 100,000 Population Boone County and Missouri, 2016					
Condition	Boone County Case Count	Boone County Rate*	Rank Among Missouri Counties**	Missouri Case Count	Missouri Rate*
Chlamydia	1167	667.0	7 th	30,843	507.0
Gonorrhea	191	109.2	18 th	11,479	188.7
Syphilis (all stages)	10	5.7	39 th	957	15.7
Total	1368	781.8		43,279	711.4

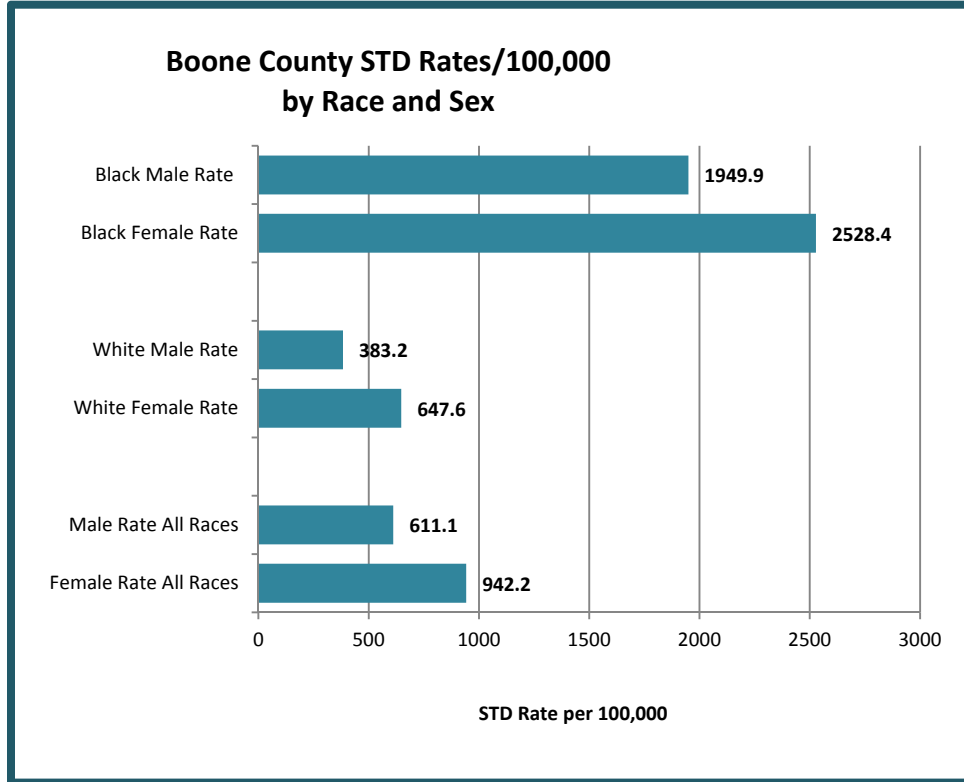
*Rate per 100,000 population

**Based on the Rate per 100,000 population of Missouri Counties

Table 2:

Percent Change of STD Rates for Boone County from 2015 to 2016			
Condition	2015 (Rate per 100,000)	2016 (Rate per 100,000)	Percent Change
Chlamydia	638.6	667.0	4.4% ↑
Gonorrhea	160.4	109.2	31.9% ↓
Syphilis (all stages)	9.8	5.7	41.8% ↓
Total	808.8	781.8	3.3% ↓

Figure 1:



Technical Notes

- Rates in this report are calculated using the 2015 estimated population. (MOPHIMS).
- 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) 2016 calendar (Jan 3, 2016-December 31, 2016).
- Ten years of trend data are used in this report to remain consistent with the Missouri Department of Health and Senior Services trend data.
- Race is analyzed in three categories: white, black, and other/unknown. Other and unknown races are reflected in the same category and not singled out for analysis because of low case counts and for confidentiality.
- Syphilis is minimally addressed because of the low number of reports in Boone County and the need to maintain confidentiality.
- HIV is not addressed in this report, The Missouri Department of Health & Senior Services releases an annual report, The Epidemiological Profiles (<http://health.mo.gov/data/hivstdaids/>), which addresses HIV in Missouri and by region.

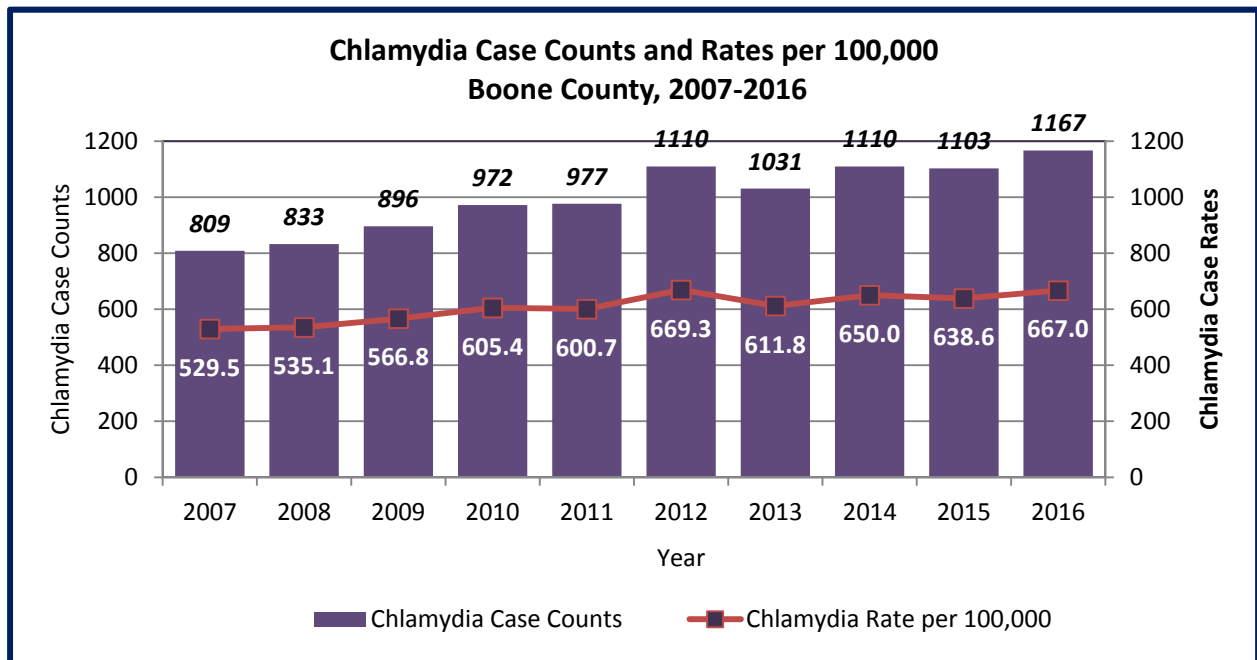
Chlamydia

Chlamydia, caused by the bacteria *Chlamydia trachomatis*, is the most common notifiable disease in the United States. It is among the most prevalent of all STDs, and since 1994, has comprised the largest proportion of all STDs reported to CDC. (CDC)

Chlamydial infections in women are usually asymptomatic. Untreated infection can result in pelvic inflammatory disease (PID), which is a major cause of infertility, ectopic pregnancy, and chronic pelvic pain (CDC).

In 2016, the 1,167 cases of chlamydia reported accounted for 85% of three sexually transmitted diseases (gonorrhea, chlamydia and syphilis) reported in Boone County. As in previous years, Boone County reported a higher incidence rate of chlamydia than Missouri (Table 1) and has the seventh highest chlamydia rate of all Missouri counties. Figure 2 shows both the total sexually transmitted disease case counts and the incidence rates per 100,000 for the past 10 years. While the 2016 rate of 667/100,000 population was a slight (4.4%) increase from the previous year, in the last ten years (2007-2016) the chlamydia rate in Boone County increased 26% (Figure2).

Figure: 2



In 2016, 65.5% of reported chlamydia cases in Boone County were females, with an incidence rate almost twice that of males (Figures 3 and 4).

Adolescents and young adults between the ages of 15 - 24 had the highest rates of reported chlamydia in Boone County as noted in Figures 4 and 5, a trend seen throughout the United States (CDC).

Figure 3:

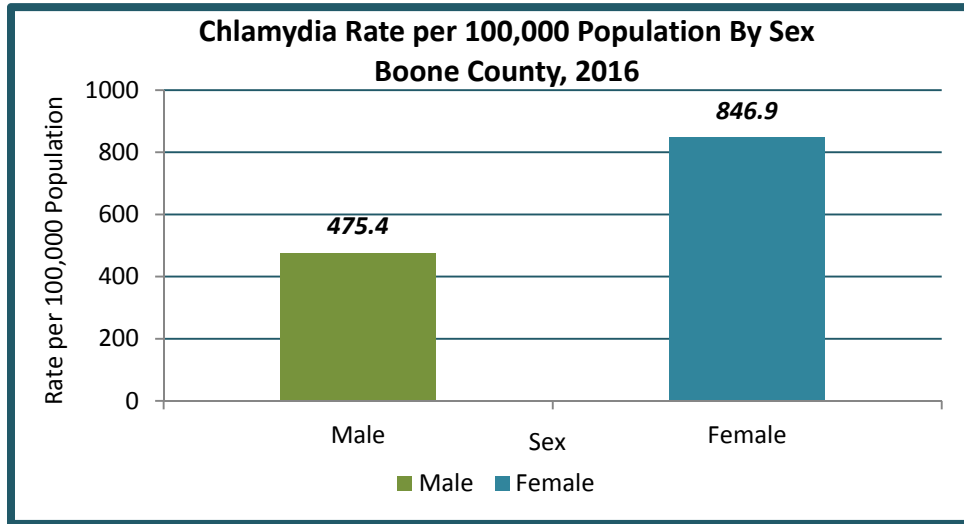


Figure 4:

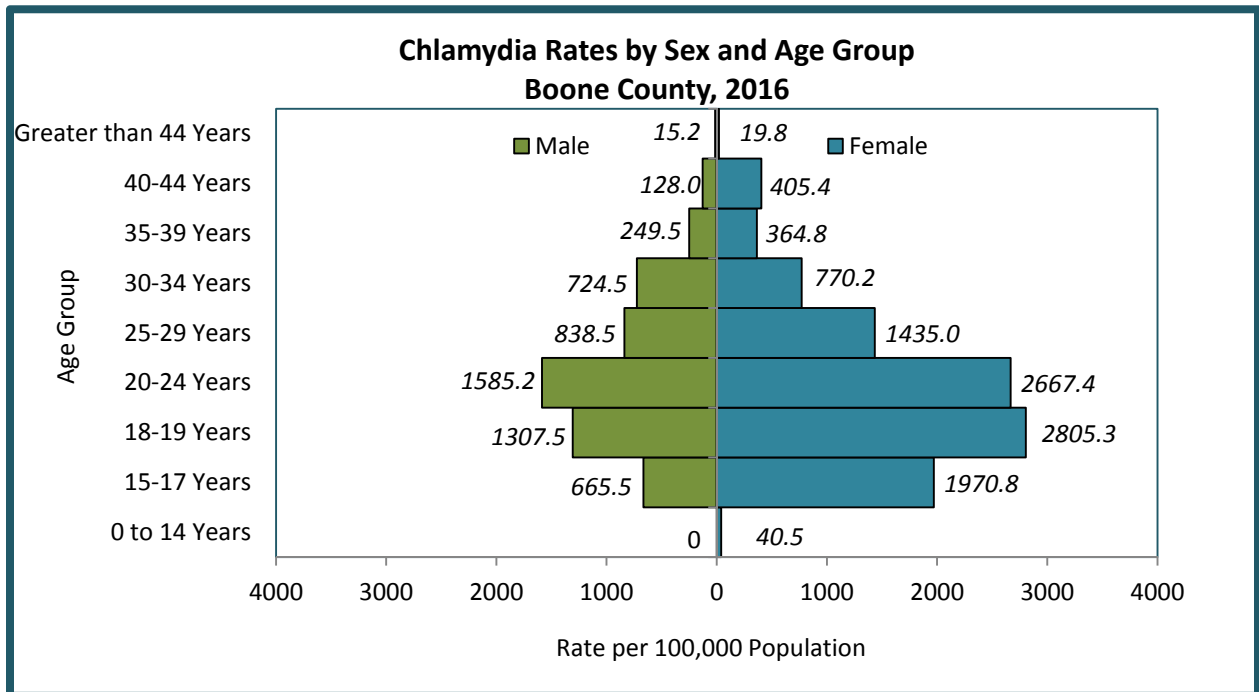
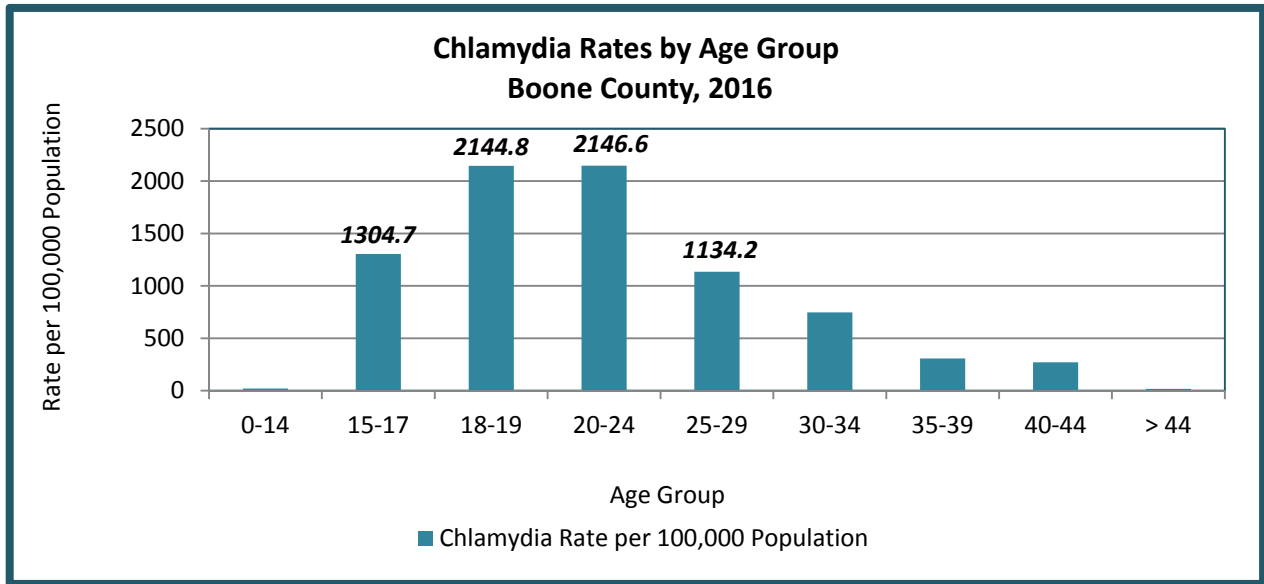
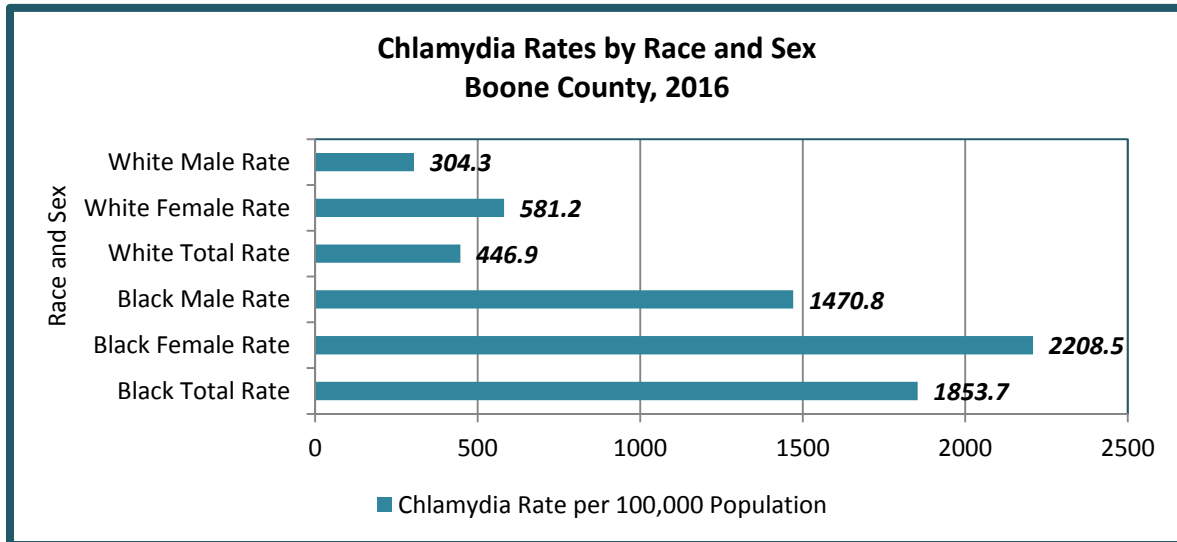


Figure 5:



The 20-24 year age group had the highest chlamydia rates, with the 18-19 year age group a close second. These two age groups account for 65% of the total cases reported in Boone County

Figure 6:



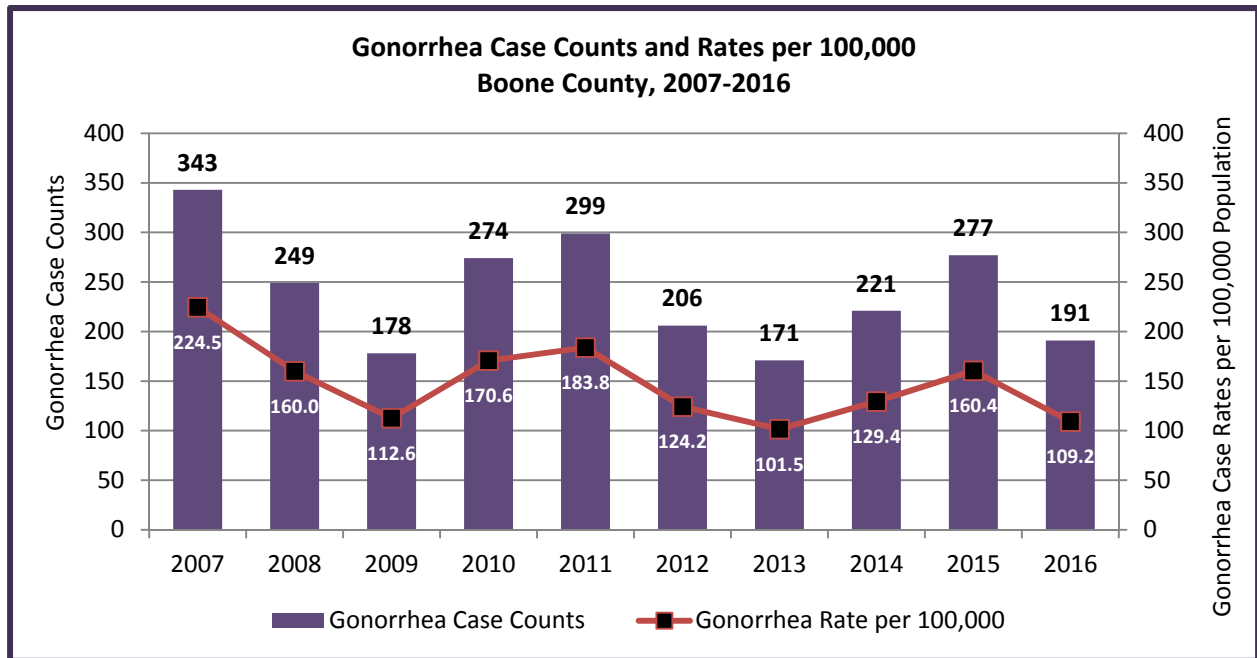
Chlamydia rates were higher for the black population than white (Figure 6), with black females having the highest rate overall.

Gonorrhea

Gonorrhea, a very common infectious disease, is caused by infection with the *Neisseria gonorrhoeae* bacterium. Gonorrhea infections, like those resulting from chlamydia, are a major cause of PID in the United States. PID can lead to serious outcomes in women, such as tubal infertility, ectopic pregnancy, and chronic pelvic pain (CDC).

In Boone County, 191 gonorrhea cases were reported in 2016. The incidence rate of gonorrhea was 109.2 per 100,000 population, a 31.9% decrease from the 2015 rate of 160.4. In 2016, Boone County ranked as the 18th highest county in Missouri for gonorrhea rates, yet was lower than Missouri's gonorrhea rate of 188.7 per 100,000 population (Tables 1 and 2).

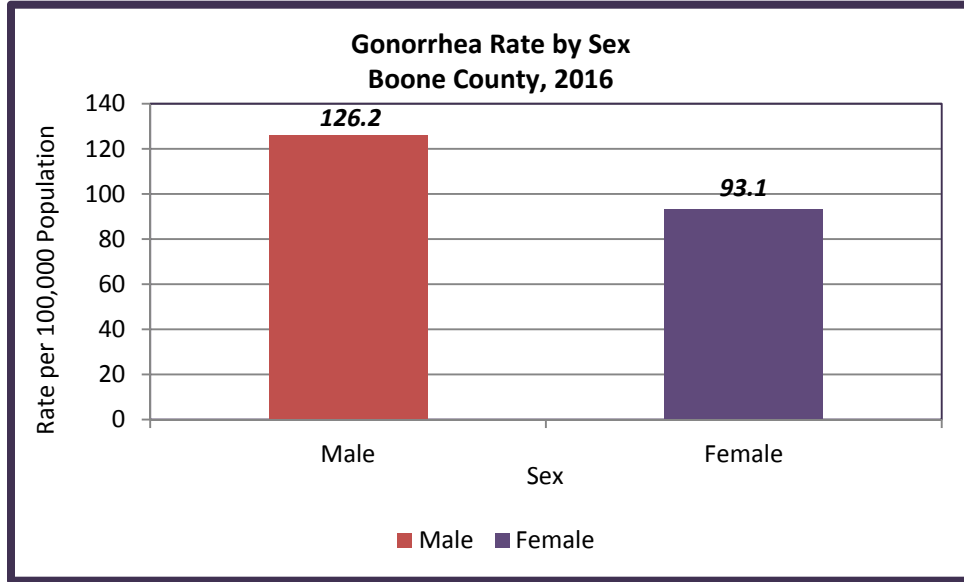
Figure 7:



Gonorrhea rates in Boone County have fluctuated during the last ten years. The 2016 Boone County rate of 109.2 per 100,000 population was 51% lower than the rate ten years ago (2007) of 224.5.

In Boone County the gonorrhea rate was higher in males than in females in 2016, with a rate of 126.2 per 100,000 compared to 93.1 per 100,000 (Figure 8).

Figure 8:



In 2016, the gonorrhea incidence was higher in males than females, with 56% of the cases reported in men (Figure 8).

Figure 9:

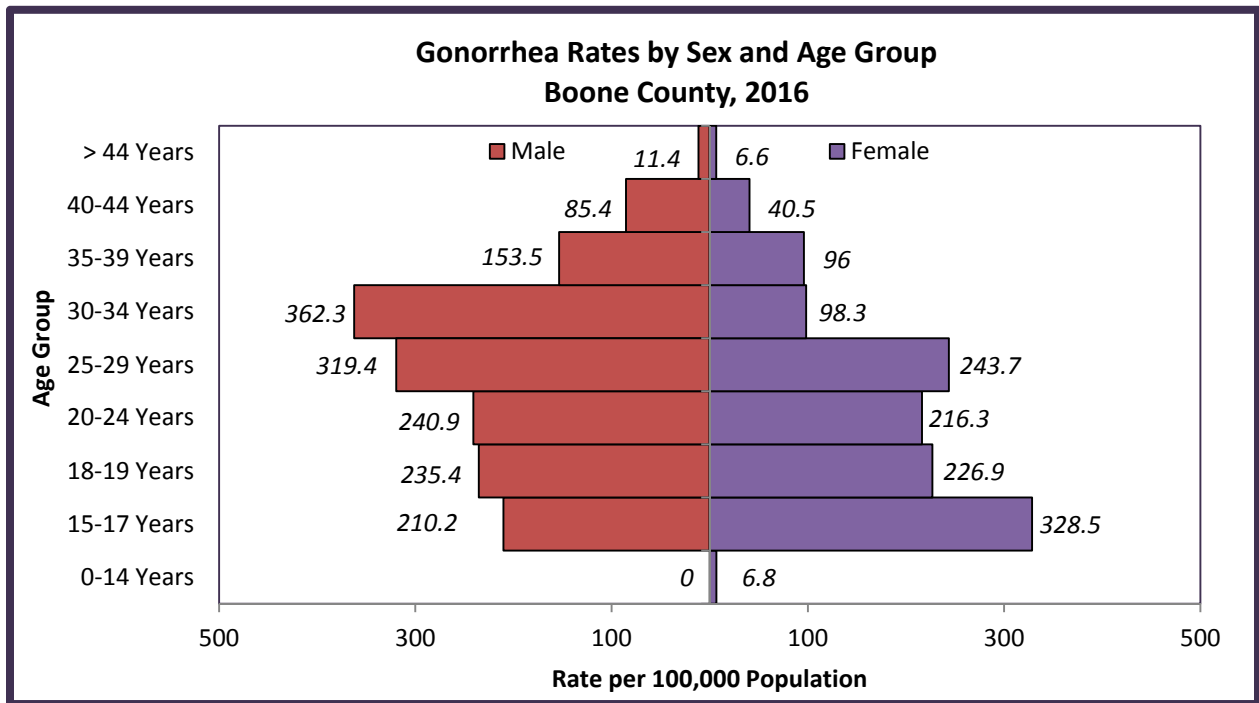
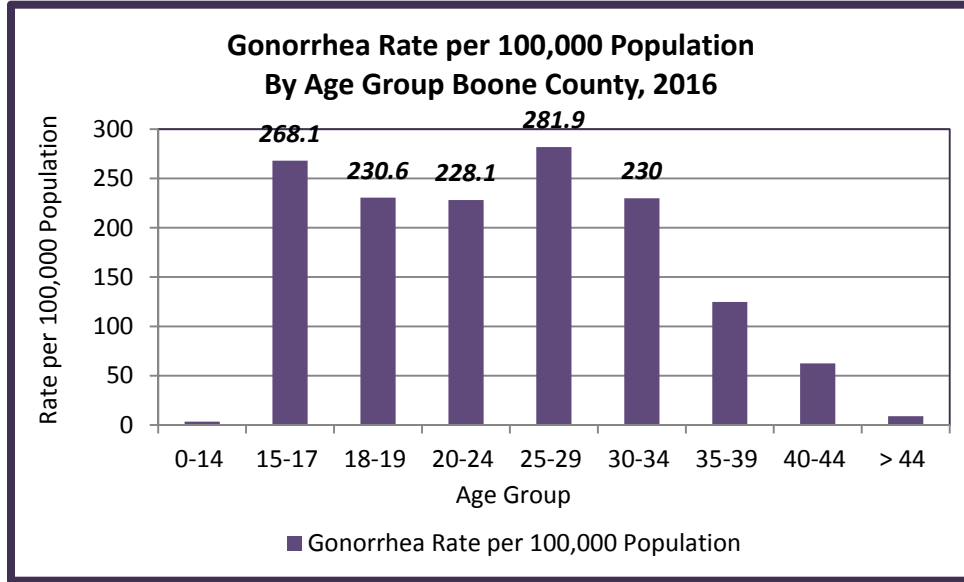
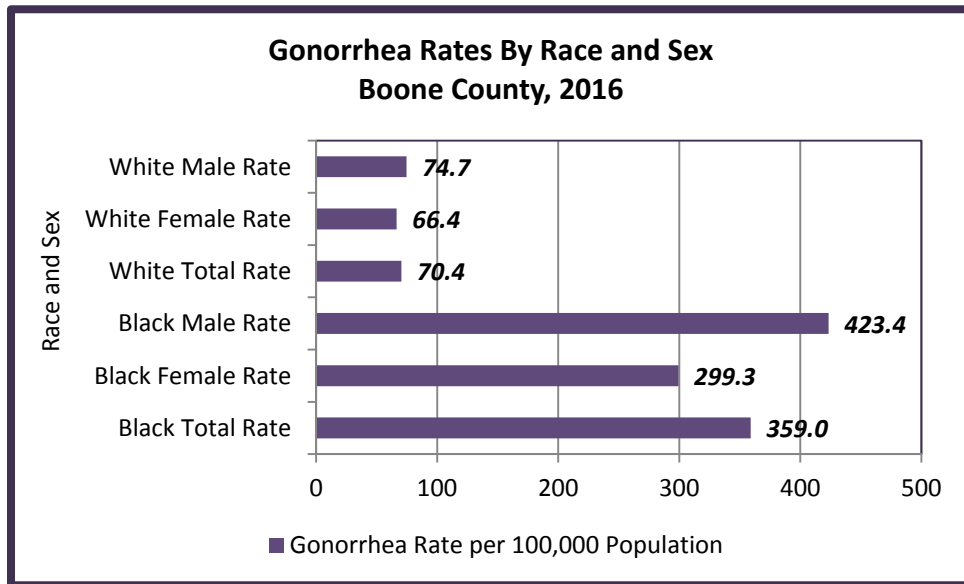


Figure 10:



The 2016 rate of gonorrhea in Boone County was highest in the 25-29 year age group, with the 15-17 year age group the second highest (Figure 10).

Figure 11:



Gonorrhea rates were higher for the black population than white (Figure 11), with black males having the highest rate overall.

Syphilis

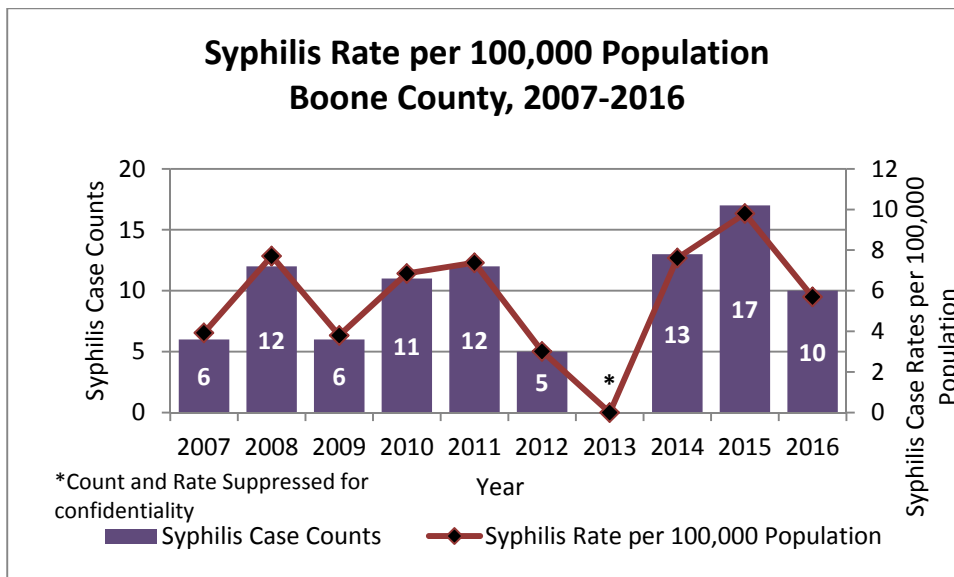
Syphilis is caused by the bacterium *Treponema pallidum*, and can cause long term complications if not adequately treated. It is transmitted from person to person by direct contact with a syphilitic sore, known as a chancre. Pregnant women with the disease can transmit it to their unborn child (CDC).

Symptoms of syphilis will resolve with or without treatment. Left untreated, the infection will progress to late stages of disease. In late stages, syphilis 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.

Boone County traditionally has low case counts and rates of syphilis. In 2016, there were 10 syphilis cases reported, with an incidence rate of 5.7 per 100,000. This is a 42% decrease from 2015 (Table 1 & 2). Missouri's incidence rate for 2016 was 15.7 per 100,000.

As mentioned in the technical notes, syphilis will not be analyzed by race, sex, or age due to low case counts. Figure 12 compares the counts and rates reported in Boone County from 2007 to 2016

Figure 12:



Reporters:

All communicable disease reports are counted in the county of residence for the patient, despite where the testing occurred. In 2016, Boone County continued to have multiple physicians and clinics providing STD testing, with the 1,368 cases reported from a total of 60 different providers and clinics in the United States. Five sites reported 81.2% of the cases. Those clinics include:

Table 3:

Reporter	Number of cases reported	Percent of Total Reported
University of Missouri Health Care System	534	39.0%
Columbia/Boone County Public Health & Human Services	289	21.1%
Planned Parenthood of Columbia	132	9.7%
Women's Health Associates	101	7.4%
Providence Urgent Care	58	4.2%
Other Reporters	254	18.6%
Total	1368	100%

Summary

Sexually transmitted diseases, particularly chlamydia, are the most reported communicable disease in Boone County, only to be surpassed by influenza in some years. While the incidence of chlamydia increased in 2016, gonorrhea and syphilis rates decreased. The younger population (15-24 year olds) was disproportionately impacted by sexually transmitted diseases in 2016. In Boone County, the sexually transmitted disease incidence rate was four times higher in the black population, compared to the white population. Data is presented by age group and sex in the Appendix (Tables A-C) and age group, sex, and race (Tables D-F).

References:

CDC. 16 December 2014. 15 May 2015 <<http://www.cdc.gov/std/chlamydia/stdfact-chlamydia-detailed.htm>>.

CDC. STD Surveillance 2015, National Profile. October 2016. 1 August 2017
<<https://www.cdc.gov/std/stats15/STD-Surveillance-2015-print.pdf>>.

MOPHIMS. n.d. July 2017 <<https://webapp01.dhss.mo.gov/MOPHIMS/QueryBuilder>>.

Appendix:

Table A:

2016 Boone County STD 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
0-14	7	47.3	0	0.0	7	23.2
15-17	63	2299.3	25	875.7	88	1572.8
18-19	148	3052.8	60	1569.0	208	2398.5
20-24	400	2883.7	238	1849.4	638	2385.9
25-29	125	1692.2	90	1197.9	215	1443.0
30-34	53	868.6	66	1086.8	119	977.4
35-39	24	460.7	21	403.0	45	431.9
40-44	22	446.0	10	213.4	32	332.7
>44	8	26.4	8	30.4	16	28.2
<i>Total (all ages)</i>	850	942.2	518	611.1	1368	781.8

Table B:

2016 Boone County Chlamydia 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
0-14	6	40.5	0	0.0	6	19.9
15-17	54	1970.8	19	665.5	73	1304.7
18-19	136	2805.3	50	1307.5	186	2144.8
20-24	370	2667.4	204	1585.2	574	2146.6
25-29	106	1435.0	63	838.5	169	1134.2
30-34	47	770.2	44	724.5	91	747.4
35-39	19	364.8	13	249.5	32	307.1
40-44	20	405.4	6	128.0	26	270.3
>44	6	19.8	4	15.2	10	17.7
<i>Total (all ages)</i>	764	846.9	403	475.4	1167	667.0

Table C:

2016 Boone County Gonorrhea 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
0-14	1	6.8	0	0.0	1	3.3
15-17	9	328.5	6	210.2	15	268.1
18-19	11	226.9	9	235.4	20	230.6
20-24	30	216.3	31	240.9	61	228.1
25-29	18	243.7	24	319.4	42	281.9
30-34	6	98.3	22	362.3	28	230.0
35-39	5	96.0	8	153.5	13	124.8
40-44	2	40.5	4	85.4	6	62.4
>44	2	6.6	3	11.4	5	8.8
<i>Total (all ages)</i>	84	93.1	107	126.2	191	109.2

Table D:

**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
0-14	*	39.4	0	0.0	*	19.6	*	35.0	0	0.0	*	17.1	*	236.1	0	0.0	*	7	23.2
15-17	28	6846.0	19	3983.2	47	5304.7	32	1474.0	*	136.9	35	802.2	*	1875.0	*	1612.9	6	88	1572.8
18-19	49	9722.2	26	6666.7	75	8389.3	77	1888.2	26	807.2	103	1411.2	22	8270.7	8	3755.9	30	208	2398.5
20-24	105	7080.2	67	5052.8	172	6123.2	244	2158.5	135	1269.3	379	1727.4	51	4704.8	36	3969.1	87	638	2385.9
25-29	36	4724.4	33	4674.2	69	4700.3	68	1098.5	48	759.1	116	927.0	21	4827.6	9	1859.5	30	215	1443.0
30-34	12	1846.2	22	3935.6	34	2812.2	32	638.1	37	717.2	69	678.2	9	2059.5	7	1971.8	16	119	977.4
35-39	8	1550.4	5	959.7	13	1253.6	12	277.0	12	279.7	24	278.4	*	1108.0	*	1000.0	8	45	431.9
40-44	5	1006.0	*	221.7	6	632.9	13	326.3	5	129.1	18	229.1	*	885.0	*	1105.0	8	32	332.7
>44	*	42.8	*	100.6	*	69.4	6	22.3	6	25.7	12	23.9	*	88.9	0	0.0	*	16	28.2
Total (all ages)	245	2528.4	175	1949.9	420	2250.2	488	647.6	272	383.2	760	519.3	117	2264.4	71	1480.1	188	1368	781.8

*Counts of less than five are suppressed for confidentiality

Table E:

**2016 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 Count	Other/Unknown Total Rate	Total Count	Total Rate
0-14	*	39.4	0	0.0	*	19.6	*	26.24	0	0	*	12.8	*	236.1	0	0.0	1733	115.4	6	19.9
15-17	24	5868.0	15	3144.7	39	4401.8	27	1243.7	*	45.6	28	641.8	*	1875.0	*	1612.9	346	1734.1	73	1304.7
18-19	43	8531.7	22	5641.0	65	7270.7	72	1765.6	22	683.0	94	1287.8	21	7894.7	6	2816.9	479	5636.7	186	2144.8
20-24	91	6136.2	55	4147.8	146	5197.6	230	2034.7	120	1128.2	350	1595.3	49	4520.3	29	3197.4	1991	3917.6	574	2146.6
25-29	32	4199.5	21	2974.5	53	3610.4	54	872.4	34	537.7	88	703.3	20	4597.7	8	1652.9	919	3046.8	169	1134.2
30-34	12	1846.2	14	2504.5	26	2150.5	27	538.4	24	465.2	51	501.3	8	1830.7	6	1690.1	792	1767.7	91	747.4
35-39	6	1162.8	*	575.8	9	867.9	9	207.8	9	209.8	18	208.8	*	1108.0	*	250.0	761	657.0	32	307.1
40-44	*	804.8	0	0.0	*	421.9	12	301.2	*	103.3	16	203.6	*	885.0	*	552.5	814	737.1	26	270.3
>44	*	42.8	*	100.6	*	69.4	*	14.9	*	8.6	6	12.0	*	88.9	0	0.0	2129	47.0	10	17.7
Total (all ages)	214	2208.5	132	1470.8	346	1853.7	438	581.2	216	304.3	654	446.9	112	2167.6	55	1146.5	9964	1676.0	1167	667.0

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

Table F:

**2016 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 Count	Other/Unknown Total Rate	Total Count	Total Rate
0-14	0	0.0	0	0.0	0	0.0	*	8.7	0	0	*	4.3	0	0.0	0	0.0	0	0.0	*	3.3
15-17	*	978.0	*	838.6	8	902.9	5	230.3	*	91.2	7	160.4	0	0.0	0	0.0	0	0.0	15	268.1
18-19	5	992.1	*	769.2	8	894.9	5	122.6	*	124.2	9	123.3	*	375.9	*	939.0	*	626.3	20	230.6
20-24	14	944.0	9	678.7	23	818.8	14	123.8	15	141.0	29	132.2	*	184.5	7	771.8	9	452.0	61	228.1
25-29	*	393.7	11	1558.1	14	953.7	14	226.2	12	189.8	26	207.8	*	229.9	*	206.6	*	217.6	42	281.9
30-34	0	0.0	8	1431.1	8	661.7	5	99.7	13	252.0	18	176.9	*	228.8	*	281.7	*	252.5	28	230.0
35-39	*	387.6	*	383.9	*	385.7	*	69.3	*	69.9	6	69.6	0	0.0	*	750.0	*	394.2	13	124.8
40-44	*	201.2	*	221.7	*	211.0	*	25.1	*	25.8	*	25.5	0	0.0	*	552.5	*	245.7	6	62.4
>44	0	0.0	0	0.0	0	0.0	*	7.4	*	12.9	5	10.0	0	0.0	0	0.0	0	0.0	5	8.8
Total (all ages)	29	299.3	38	423.4	67	359.0	50	66.4	53	74.7	103	70.4	5	96.8	16	333.5	21	210.8	191	109.2

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



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