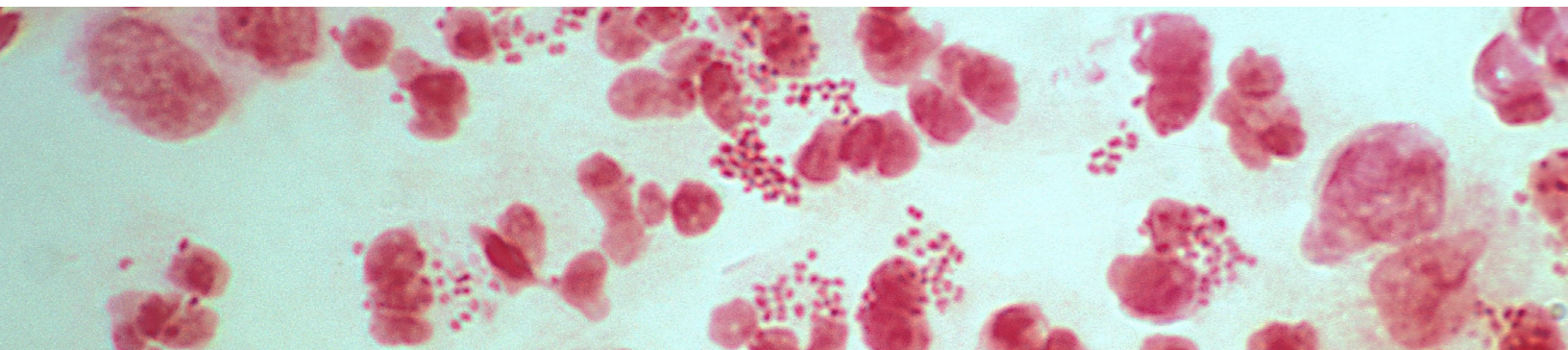




Columbia/Boone County Department of Public Health and Human Services

2014 Sexually Transmitted Disease Summary



Prepared May 2015



Public Health
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**Columbia/Boone County
Public Health & Human Services**

2014 Sexually Transmitted Disease Summary

Boone County, Missouri

The 2014 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 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. Sexually transmitted diseases are often the most common reportable communicable diseases for Boone County, with chlamydia the most frequently reported disease.

This report looks at both chlamydia and gonorrhea reported in Boone County by case counts, rates, age group, gender and race. Race is put into three categories: white, black, and other/unknown. Because of the low case counts, multi-race, Asian, American Indian, other and unknown are included together in the other/unknown category for confidentiality. Due to the combination of multi-race and unknown, it is difficult to compare rates between races. Syphilis is minimally addressed because of the low number of reports in Boone County and the need to maintain confidentiality.

Missouri's communicable disease reporting rule, 19 CSR 20-20.020 requires reporting of chlamydia and gonorrhea cases within three days, and syphilis, including congenital syphilis, within one day to the local health authority or Missouri Department of Health and Senior Services (MDHSS). Demographic information, laboratory results, and treatment information are collected on standardized report forms and laboratory reports (Missouri Department of Health & Senior Services, 2013).

The data analyzed in this report is from cases diagnosed in 2014. It only represents those tested and reported. This underestimates the true burden of infection as not all seek care due to a lack of symptoms and some may receive treatment without being tested. Case counts (the number of reports) 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.

In 2014, Boone County had the third highest chlamydia rate among counties in Missouri (649.6 per 100,000) ranking behind St. Louis City and Jackson County, and the ninth highest gonorrhea rate (129.4 per 100,000) ranking behind St. Louis City, Jackson, Pemiscot, New Madrid, St. Louis County, Butler, Cole and Greene Counties. Boone County has traditionally had high chlamydia and gonorrhea rates. Several factors may play a role in the high chlamydia and gonorrhea rates in Boone County, including 15 to 24 year olds make up 25% of the county population, and there

are many clinics and physicians which offer testing and treatment, some at a free or reduced cost.

Figure 1:

Reported STDs by Count and Incidence Rate per 100,000 Population Boone County and Missouri 2014				
Disease	Boone County Count	Boone County Rate*	Missouri Count	Missouri Rate*
Chlamydia	1110	649.6	27,981	462.9
Gonorrhea	221	129.4	7387	122.2
Syphilis	13	7.6	771	12.8
Total	1344	786.9	36,139	597.9

*Using 2013 Estimated Boone County Population

Figure 2:

Reported STDs by Count and Incidence Rate per 100,000 Population By Age Group Boone County 2014		
Age Group	Cases	Rates*
0-14	9	30.3
15-19	355	2503.9
20-24	650	2402.8
25-34	269	1030.7
35-44	44	227.2
45-54	11	57.1
55-64	6	33.5
65+	0	0
Total	1344	786.9

*Using 2013 Estimated Boone County Population

Figure 3:

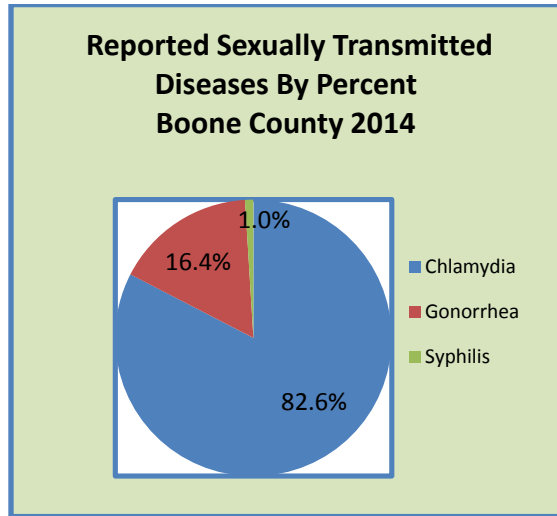
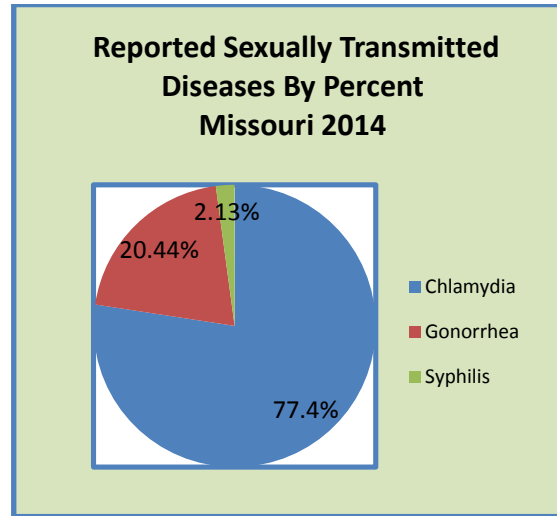


Figure 4:



There were a total of 1,110 chlamydia cases reported in Boone County in 2014, making up 82.6% of all reported STDs (chlamydia, gonorrhea and syphilis). Boone County reported a higher incidence rate of both chlamydia and gonorrhea cases in 2014 than Missouri, but a lower syphilis rate. Figure 9 shows both the total sexually transmitted disease case counts for the past 15 years and the incidence rates per 100,000. Case counts have increased 97% over the 15 years. Due to population growth, rates have increased 55% over the same time period. The increased number of sexually transmitted disease cases in Boone County creates an increased patient load at local clinics, particularly those which see the highest number of 15 to 24 year olds. The largest numbers of STDs were reported among the 20 to 24 year old age range for both males and females. However, looking at the disease rates shows the biggest impact of cases in 15-19 year old females followed by 20-24 year old females.

Figure 5:

Reported STDs By Gender Boone County 2014		
Gender	Count	Percent of Total
Female	842	62.6%
Male	502	37.4%
Total	1344	100%

Figure 6:

Reported STDs By Race Boone County 2014		
Race	Count	Percent of Total
White	679	50.5%
Black	463	34.5%
Other/Unknown	202	15.0%
Total	1344	100%

Figure 7:

Reported Sexually Transmitted Diseases (Chlamydia, Gonorrhea & Syphilis) Case Counts and Incidence Rates per 100,000* Population By Age Group, Gender and Race Boone County 2014 Male Population								
Age Group	White		Black		Other/Unknown		Total	
	Cases	Rates*	Cases	Rates	Cases	Rates	Cases	Rates
0-14	0	0	0	0	0	0	0	0
15-19	30	551.4	43	5000.0	5	1533.7	78	1177.0
20-24	142	1303.4	76	6178.9	37	4986.5	255	1981.8
25-34	64	570.0	43	3539.1	23	2911.4	131	989.9
35-44	9	112.9	9	1030.9	7	1088.6	24	251.6
45-54	**	37.8	**	461.9	**	689.7	10	108.3
55-64	**	40.1	**	148.6	0	0	**	47.5
65+	0	0	0	0	0	0	0	0
Total	251	359.2	176	2048.9	75	1774.3	502	607.1

*Using 2013 Estimated Boone County Population

** Counts of less than five are suppressed for confidentiality

Figure 8:

Reported Sexually Transmitted Diseases (Chlamydia, Gonorrhea & Syphilis) Case Counts and Incidence Rate per 100,000* Population By Age Group, Gender and Race Boone County 2014 Female Population								
Age Group	White		Black		Other/Unknown		Total	
	Cases	Rates*	Cases	Rates	Cases	Rates	Cases	Rates
0-14	0	0	6	252.3	9	414.9	9	62.5
15-19	126	2018.3	110	11677.3	41	11202.2	277	3668.4
20-24	208	1759.3	123	8390.2	64	7142.9	395	2784.6
25-34	77	712.2	46	3619.2	15	1915.7	138	1072.6
35-44	17	208.4	**	101.3	**	292.8	20	203.5
45-54	0	0	0	0	**	211.9	**	10.0
55-64	0	0	**	137.4	**	308.3	**	21.1
65+	0	0	0	0	0	0	0	0
Total	428	575.8	287	3076.4	127	2851.4	842	842.0

*Using 2013 Estimated Boone County Population

** Counts of less than five are suppressed for confidentiality

Figure 9:

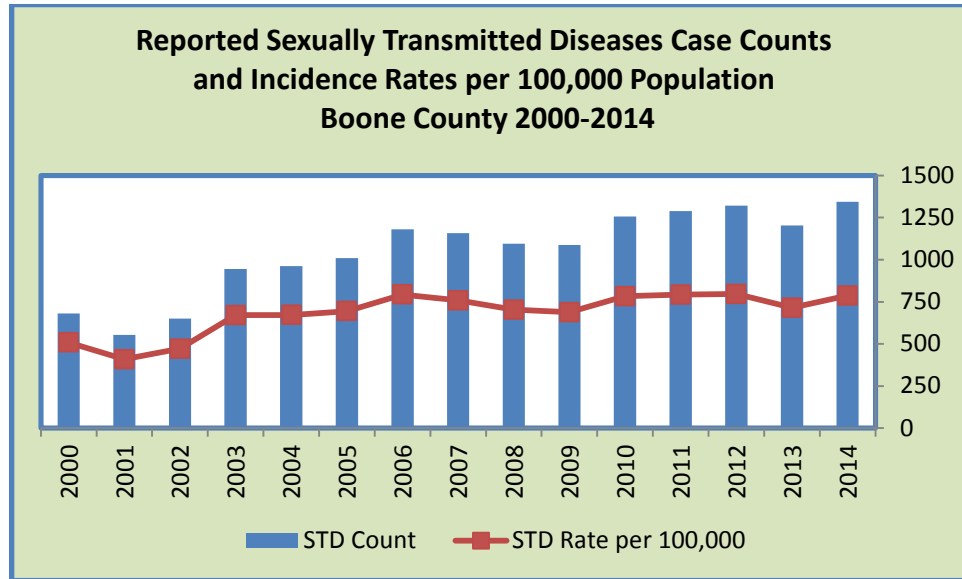
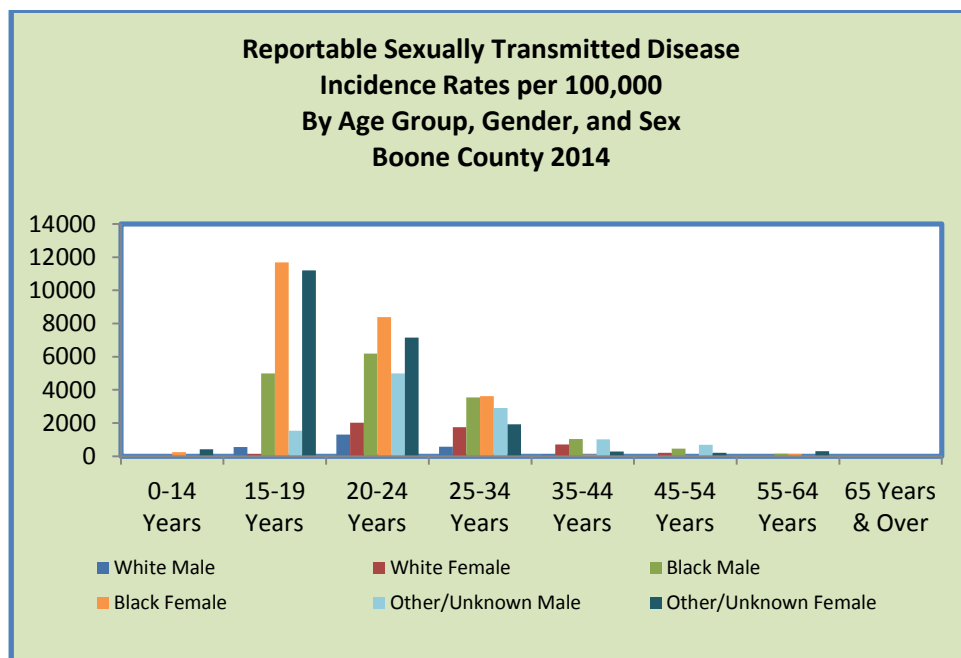


Figure 10:



Chlamydia

Chlamydia is a common sexually transmitted disease (STD) caused by infection with *Chlamydia trachomatis*. It can infect both men and women. Chlamydial 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 are underdiagnosed because most people with chlamydia are asymptomatic and do not seek testing. It is most common among young people. In the United States, substantial racial/ethnic disparities in chlamydial infections exist, with prevalence among non-Hispanic blacks 6.2 times the prevalence among non-Hispanic whites (CDC, 2014).

In Boone County, there were a total of 1,110 cases of chlamydia reported in 2014, with a rate of 649.9 per 100,000. Figure 11 shows all of the reported chlamydia cases by age group and gender, while figures 12-14 further break down the chlamydia counts and rates by age group, gender and race. Because of the low case counts, multi-race, Asian, American Indian, other, and unknown are combined in one category for confidentiality.

Figure 11

Reported Chlamydia Cases and Incidence Rates per 100,000 Population by Gender and Age Group Boone County 2014						
	Male		Females		Total	
Age Group	Cases	Rates*	Cases	Rates*	Cases	Rates*
0-14	0	0	6	41.6	6	20.2
15-19	59	890.3	235	3112.2	294	2073.6
20-24	210	1632.1	358	2523.8	568	2099.7
25-34	93	702.8	112	870.5	205	785.5
35-44	13	136.3	14	142.5	27	139.4
45-54	7	75.8	0	0	7	36.3
55-64	**	11.9	2	21.1	**	17.4
65+	0	0	0	0	0	0
Total	383	463.2	727	825.0	1110	649.9

*Rates per 100,000 population based on 2013 MDHSS population estimates

** Counts of less than five are suppressed for confidentiality

Figure 12:

Reported Chlamydia Cases and Rates by Gender and Age Group, Boone County, 2014						
White Population						
Age Group	Male		Female		Total	
	Cases	Rate*	Cases	Rate*	Cases	Rate*
0-14	0	0	0	0	0	0
15-19	25	459.5	112	1794.0	137	1172.5
20-24	123	1129.0	197	1666.2	320	1408.6
25-34	50	445.31	65	601.2	115	521.8
35-44	**	50.2	12	147.1	16	99.2
45-54	**	37.8	0	0	**	18.2
55-64	0	0	0	0	0	0
65+	0	0	0	0	0	0
Total	205	293.4	386	519.3	591	409.8

Figure 13:

Reported Chlamydia Cases and Rates by Gender and Age Group, Boone County, 2014						
Black Population						
Age Group	Male		Female		Total	
	Cases	Rate*	Cases	Rate*	Cases	Rate*
0-14	0	0	**	126.2	**	61.3
15-19	31	3604.7	90	9554.1	121	6714.8
20-24	59	4796.7	102	6957.7	161	5971.8
25-34	25	2057.6	34	2675.1	59	2373.3
35-44	5	572.7	0	0	5	268.8
45-54	**	115.5	0	0	**	52.9
55-64	**	148.6	**	137.4	**	142.8
65+	0	0	0	0	0	0
Total	122	1420.3	230	2465.4	352	1964.4

Figure 14:

Reported Chlamydia Cases and Rates by Gender and Age Group, Boone County, 2014						
Other/Unknown Population						
Age Group	Male		Female		Total	
	Cases	Rate*	Cases	Rate*	Cases	Rate*
0-14	0	0	**	414.9	**	197.2
15-19	**	920.0	33	9016.4	36	5202.3
20-24	28	3773.6	59	6584.8	87	5311.4
25-34	18	2278.5	13	1660.3	31	1970.8
35-44	**	576.4	**	292.8	6	435.7
45-54	**	689.7	0	0	**	330.8
55-64	0	0	**	308.6	**	169.5
65+	0	0	0	0	0	0
Total	56	1324.8	111	2492.1	167	1923.7

*Rates per 100,000 population based on 2013 MDHSS population estimates

** Counts of less than five are suppressed for confidentiality

Figure 15:

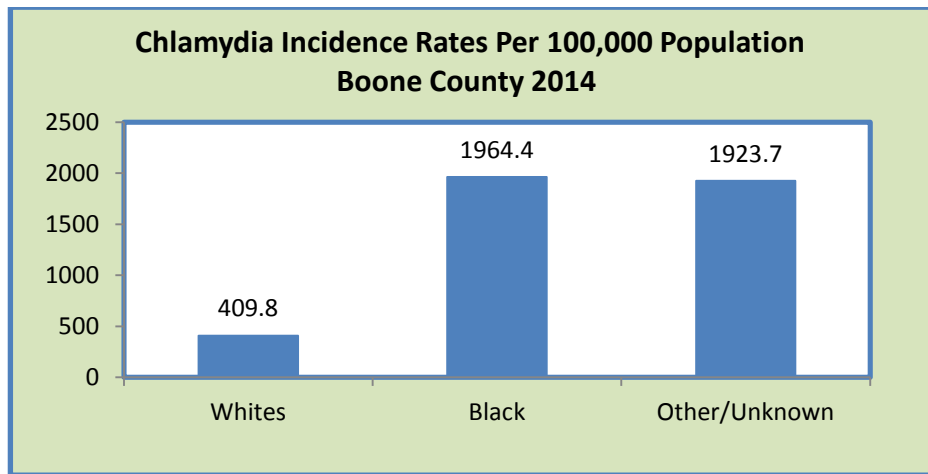


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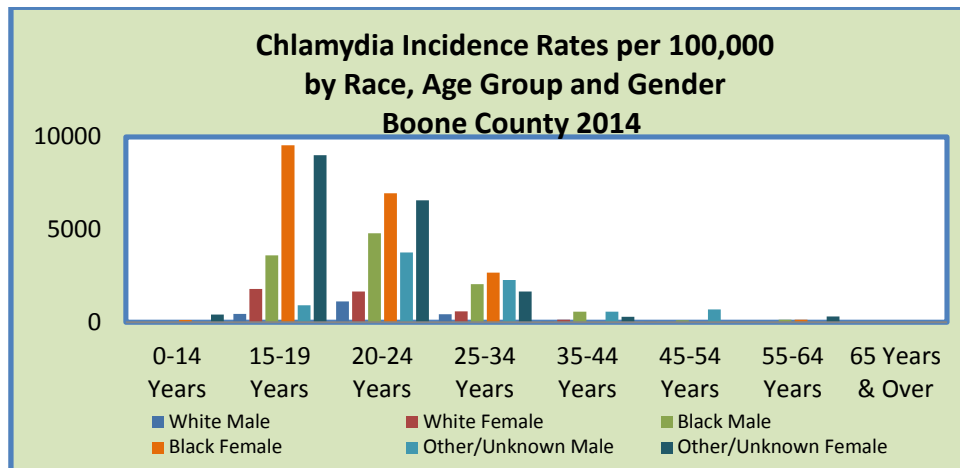
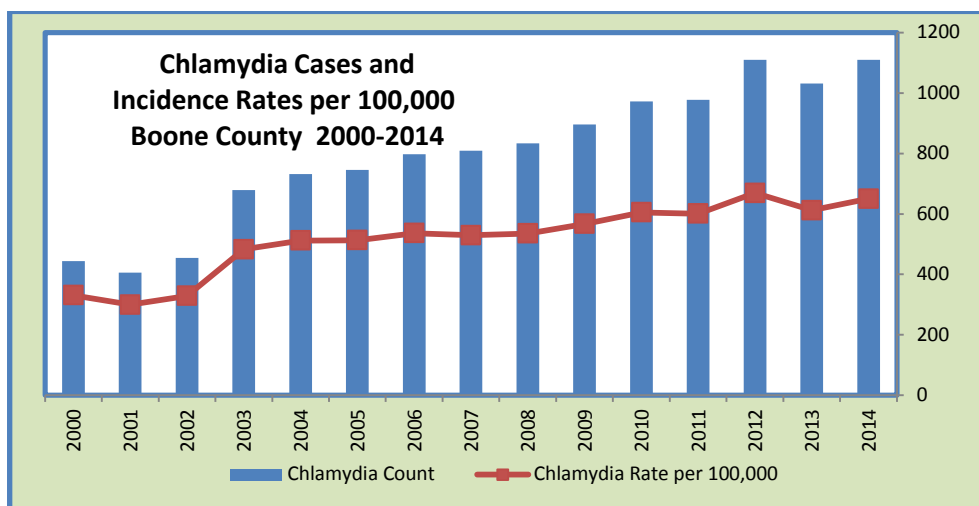


Figure 17:



Chlamydia in Boone County 2014:

- 1,110 cases reported with incidence rate of 649.9 per 100,000
- Third highest rate in Missouri, and a significantly higher rate than Missouri
- More cases reported in 2014 than in 2013, but the same case count as 2012
- More cases reported in females than males
- Females have a higher incidence rate per 100,000 than males
- The 20 to 24 age group has almost twice as many chlamydia cases reported than the 15 to 19 age group
- The 20 to 24 age group has a slightly higher incidence rate per 100,000 population, despite a lower case count
- The highest chlamydia rates are found in black females, followed by black males
- Black men and women are 4.8 times more likely to have a confirmed chlamydia diagnosis than white men and women
- The incidence rate for a black females in the 15 to 19 age group is 9,554.1 per 100,000, which is 5.3 times higher than a white female in the same age group
- The highest incidence rate for all males is the 20 to 24 age group, with black males 4.2 times more likely to be reported with chlamydia than a white male

Gonorrhea

Gonorrhea is a sexually transmitted disease which infects both men and women, caused by infection with the *Neisseria gonorrhoeae* bacterium. 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 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 are also asymptomatic. 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, CDC estimates that 570,000 of those infected with gonorrhea are between 15-24 years of age (CDC, 2014).

In Boone County, 221 gonorrhea cases were reported in 2014. This is a 29% increase over the 171 reported cases in 2013. Boone County ranks as the seventh highest county in Missouri for gonorrhea rates (129.4 per 100,000 population), and is slightly higher than the gonorrhea rate for Missouri (122.9 per 100,000 population).

Figure 18:

Reported Gonorrhea Cases and Incidence Rates per 100,000 by Gender and Age Group Boone County 2014						
Age Group	Male		Females		Total	
	Cases	Rates*	Cases	Rates*	Cases	Rates*
0-14	0	0	*	20.8	**	10.1
15-19	18	271.6	41	543.0	59	416.1
20-24	44	342.0	35	246.7	79	292.0
25-34	36	272.0	25	194.3	61	233.7
35-44	9	94.3	6	61.1	15	77.5
45-54	**	32.5	0	0	**	15.6
55-64	**	11.9	0	0	**	5.6
65+	0	0	0	0	0	0
Total	111	134.2	110	124.8	221	129.4

*Rates per 100,000 population based on 2013 MDHSS population estimates

** Counts of less than five are suppressed for confidentiality

Figure 19:

Reported Gonorrhea Cases and Incidence Rates by Gender and Age Group Boone County, 2014 White Population						
Age Group	Male		Female		Total	
	Cases	Rate*	Cases	Rate*	Cases	Rate*
0-14	0	0	0	0	0	0
15-19	**	73.5	14	224.3	18	154.1
20-24	18	165.2	11	93.0	29	127.7
25-34	13	115.8	12	111.0	25	113.4
35-44	**	37.6	5	61.3	8	49.6
45-54	0	0	0	0	0	0
55-64	**	13.4	0	0	**	6.3
65+	0	0	0	0	0	0
Total	39	55.8	42	56.5	81	56.2

Figure 20:

Reported Gonorrhea Cases and Incidence Rates by Gender and Age Group, Boone County, 2014 Black Population						
Age Group	Male		Female		Total	
	Cases	Rate*	Cases	Rate*	Cases	Rate*
0-14	0	0	**	126.2	**	61.3
15-19	12	1395.3	19	2017.0	31	1720.3
20-24	17	1382.1	20	1364.3	37	1372.4
25-34	17	1399.2	11	865.5	28	1126.3
35-44	**	458.2	**	101.3	**	268.8
45-54	**	346.4	0	0	**	158.8
55-64	0	0	0	0	0	0
65+	0	0	0	0	0	0
Total	53	617.0	54	578.8	107	597.1

Figure 21:

Figure 17: Reported Gonorrhea Cases and Incidence Rates by Gender and Age Group, Boone County, 2014 Other/Unknown Population						
Age Group	Male		Female		Total	
	Cases	Rate*	Cases	Rate*	Cases	Rate*
0-14	0	0	0	0	0	0
15-19	**	613.5	8	2185.8	18	1445.1
20-24	9	1212.9	**	446.4	13	793.7
25-34	6	759.5	**	255.4	8	581.0
35-44	**	288.2	0	0	**	145.2
45-54	0	0	0	0	0	0
55-64	0	0	0	0	0	0
65+	0	0	0	0	0	0
Total	19	449.5	14	314.3	33	380.1

*Rates per 100,000 population based on 2013 MDHSS population estimates

** Counts of less than five are suppressed for confidentiality

Figure 22:

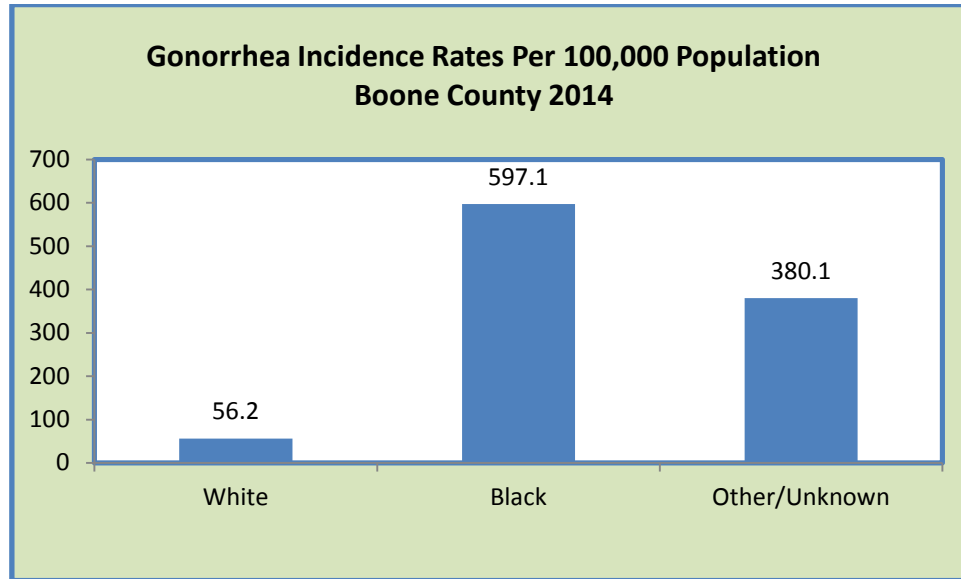
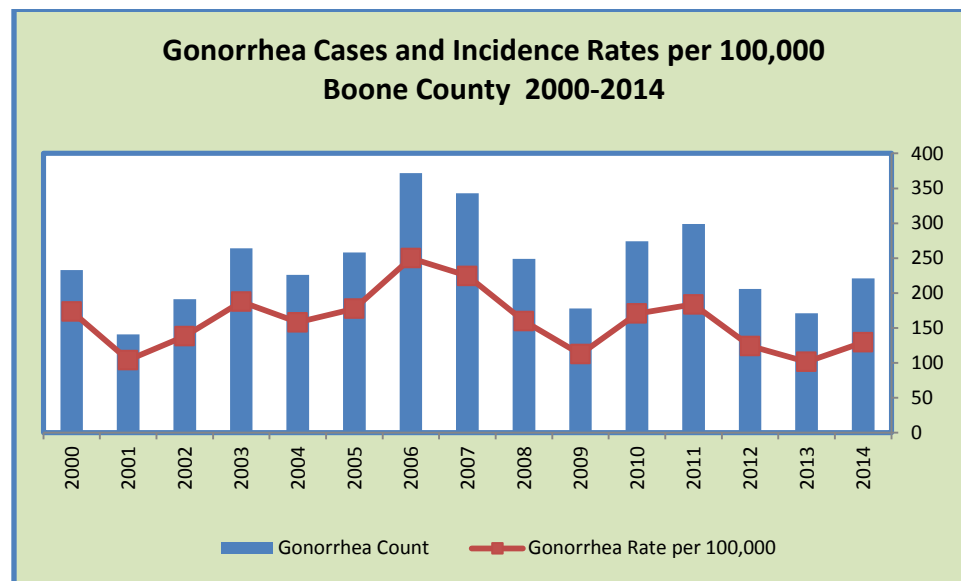


Figure 23:



Gonorrhea in Boone County 2014:

- 221 cases reported with an incidence rate of 129.4 per 100,000 population
- Ninth highest rate in Missouri with a rate slightly higher than Missouri
- Twenty-nine percent increase from 2013 count of 171
- Twenty-seven percent increase from 2013 rate of 101.5 per 100,000
- Gonorrhea case counts are highest in the 20 to 24 age group, but incidence rates are highest in the 15 to 19 age group
- White females in the 15 to 19 age group are three times more likely to be reported with gonorrhea than white males in the same age group
- Black females in the 15 to 19 age group are nine times more likely than white females in the same age group to be reported with gonorrhea
- Black males in the 15 to 19 age group are 19 times more likely to be reported with gonorrhea than a white male in the same age group
- Black males aged 20 to 24 are 8.5 times more likely to be reported with gonorrhea than white males in the same age group
- Black males in the 25 to 34 age group are 12 times more likely to be reported with gonorrhea than a white male in the same age group

Syphilis

Syphilis is a sexually transmitted disease caused by the bacterium *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 it to their unborn child (CDC, 2014).

Symptoms of syphilis will go away with or without treatment, but without treatment, the infection will progress to late stages of disease. In 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.

Boone County traditionally has low case counts and rates of syphilis. In 2014, there were 13 syphilis cases reported, with an incidence rate of 7.6 per 100,000. Missouri's incidence rate for 2014 was 12.8 per 100,000. As mentioned previously, syphilis will not be analyzed by race, gender, and age group because of low total counts. Figure 24 compares the county counts and rates from 2000 through 2015 and figure 25 compares Boone County with Missouri incidence rates.

Figure 24:

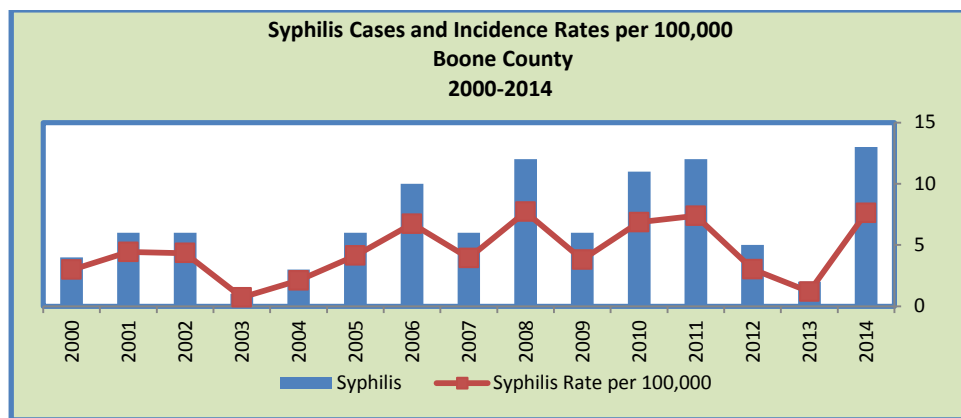
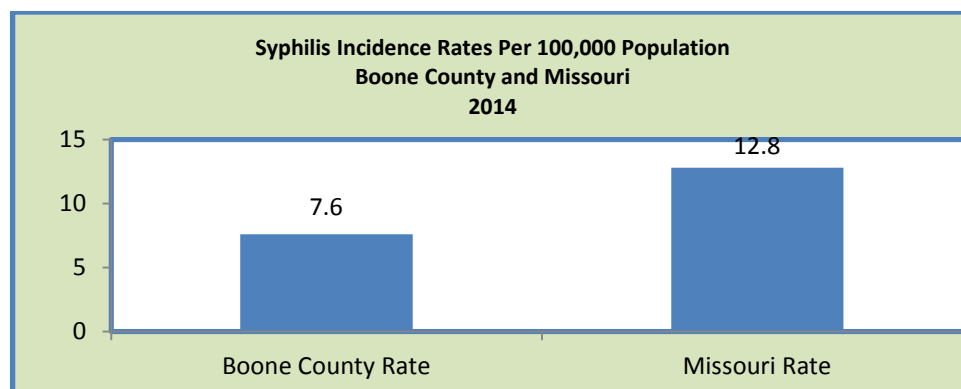


Figure 25:



Reporters:

All communicable disease reports are counted in the county of residence for the patient, despite where the testing occurred. In 2014, sexually transmitted diseases in Boone County residents were reported from a total of 63 different providers and clinics in the United States. The majority of cases were reported by local providers. Seven sites reported 84.3% of the cases. Those clinics include:

Figure 26:

Reporter	Number of cases reported	Percent of Total Reported
University of Missouri Health Care System	364	27.1%
Columbia/Boone County Public Health & Human Services	260	19.3%
Rain of Central Missouri	201	15.0%
University of Missouri Student Health	108	8.0%
Women's Health Associates	75	5.6%
Providence Urgent Care	56	4.2%
Other Reporters	213	15.8%
Total	1344	100%

Summary

Sexually transmitted diseases, particularly chlamydia, are often the most reported communicable disease in Boone County, only to be surpassed by influenza in some years. The total rate of STDs reported in Boone County is 31.6% higher than Missouri's rate, with chlamydia being 39.7% higher than Missouri's chlamydia rate. Disparities in rates are highlighted between blacks and whites, particularly in 15 to 24 year olds. The most notable rate is in the black female 15-19 age group with an incidence rate of 11,677.3 per 100,000 population.

When broken down by race, blacks experience a rate of reported sexually transmitted diseases over four times higher than whites. This report highlights the disparities further with breaking down the rates by gender, race and age group.

Access to multiple testing facilities for sexually transmitted diseases is often mentioned as one of the reasons for Boone County's high STD rates, along with the high percentage of the county population between the ages of 15-24. It is not clear why the racial disparities exist in the sexually transmitted disease reports.

This report highlights the disparities between whites and blacks, but does not focus on the high rates in the category “other, unknown”. Within this category, 86 cases were reported with no race marked. Working with providers to report race when possible could help give a truer picture of reported cases.

Approximately 75% of the sexually transmitted disease cases reported are sent to the local health agency, with the others being either disease case reports or lab reports sent directly to the Missouri Department of Health and Senior Services. Those reported to the Columbia/Boone County Department of Public Health and Human Services are assessed for completeness of report and appropriate treatment. The remaining reports may lack demographic and treatment information. Encouraging providers to report cases with complete information could help target and treat cases that may go untreated, and potentially prevent further cases.

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