Sexually Transmitted Infections in Colorado

2015 Annual Report

Colorado 2015 Sexually Transmitted Infections Annual Report

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Suggested Citation:
Colorado 2015 Sexually Transmitted Infections Annual Report
Colorado Department of Public Health and Environment, Denver, CO
March 2017

Acknowledgements

This Sexually Transmitted Infections Annual Report was produced by the STI/HIV/Viral Hepatitis Branch, Colorado Department of Public Health & Environment.

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Executive Summary

The 2015 Sexually Transmitted Infection Annual Report presents statistics and trends for reportable sexually transmitted infections (STIs) in Colorado. These include, chlamydia, gonorrhea and syphilis. STIs are the most commonly reported diseases in Colorado, and are among the world's most common diseases, with an annual incidence exceeded only by diarrheal diseases, malaria, and lower respiratory infections. In 2015, 28,701 cases of chlamydia, gonorrhea and early syphilis were newly reported in Colorado. This report describes trends in reportable STIs in Colorado by person, place, and time.

STI surveillance data are used to detect outbreaks, prioritize resources, develop and target interventions, and evaluate the effectiveness of interventions. Some of the reasons for preventing and controlling STIs include high rates of complications and adverse health outcomes. STIs also can facilitate the transmission of HIV, and are closely related to other co-morbidities such as substance abuse and mental illness. STIs can also serve as a marker to identify health-related disparities that may exist in Colorado communities.

Data Sources, Methods and Limitations

Under Colorado law, health care providers and laboratories must report all diagnosed cases of chlamydia and gonorrhea to the Colorado Department of Public Health and Environment (CDPHE) within seven days and all syphilis cases within 24 hours.[1] These case reports are entered into the statewide STI reporting database. Case reports entered into this database are the primary data source for diagnosed cases of STIs in Colorado. Chlamydia, gonorrhea and syphilis cases most often require laboratory confirmation; all laboratories submit STI reports to CDPHE, and all major laboratories report STIs electronically via secure data networks.

Due to a decrease in staffing in the Laboratory Surveillance Unit the percent of unknown race/ethnicity has increased since 2012. This was most evident in chlamydia where the percent of unknown race/ethnicity went from 28.1 percent in 2012 to 41.4 percent in 2014 then decreased slightly in 2014 to 39.9 percent. Due to this proportion of cases having unknown race/ethnicity trends of the rates by this variable are not displayed. Gonorrhea also showed an increase in unknown race/ethnicity from 13.9 percent in 2012 to 23.9 percent in 2015, but the rates by race/ethnicity are displayed. The proportion missing race/ethnicity may be improved in the future by increased staffing in the Laboratory Surveillance Unit.

[1] Colorado Department of Public Health and Environment, Disease Control and Environmental Epidemiology Division, Colorado Revised Statutes § 6 CCR 1009-1, Rules and Regulations Pertaining to Epidemic and Communicable Disease Control (Promulgated by The State Board of Health). https://www.colorado.gov/pacific/cdphe/regulations-adopted-board-health-division. Amended Jan 6, 2016.

CDPHE staff anticipate that the implementation of the Integrated Disease Reporting Unit will improve the demographic data in the future when chlamydia is included in the diseases for which the unit conducts preliminary missing data investigation.

Beginning in January 2009, Colorado began using a new STI reporting system (PRISM). This system allows for electronic disease reporting and helps to reduce the reporting delays of the former paper-based case reporting processes. This has led to an improvement in the speed of partner management and treatment activities. Case information is updated as provider reports are received and interviews with patients are completed. Additionally, STI related reports are now geocoded, providing assurance that cases are attributed to the right jurisdiction for official reporting purposes and allowing for more accurate calculation of incidence rates at a geographic level.

Crude incidence rates in this report are calculated based on cases diagnosed in the calendar year per 100,000 persons. The 2014 disease incidence rates for all Colorado counties are calculated by dividing the number of cases diagnosed for that county in 2015 by the 2015 total population for each county estimated by the Colorado State Demography Office and multiplying by 100,000.

Crude age and gender-specific incidence rates are presented in this report. The counts presented are summations of all valid data reported in the 2015 reporting year. Rates based on a small number of cases are often statistically unreliable especially for counties with small populations or where rates are calculated for age, gender or race/ethnicity with small cell sizes.

Guidelines for Accurate Use of Data

The following guidelines are provided to ensure an accurate understanding of the use, interpretation and limitations of the data presented in this report. These guidelines can help prevent data misuse, and increase understanding of the accuracy and correct use of the STI data. These guidelines may be considered when reviewing data from any source.

1. Data in this report are primarily reported for new cases of STIs diagnosed in 2015. They are not for unique persons diagnosed with disease, e.g. a person may have more than on infection in a single year.
2. Data in this report are based on cases reported to the STI/HIV Surveillance Program, Disease Control and Environmental Epidemiology Division, CDPHE. These data represent infections among persons seeking and receiving care for STIs.
3. Small changes in numbers from year to year can appear dramatic if the actual number of cases is small. For example, if two cases of gonorrhea are counted in a county in one year and three cases are counted the next year, this is an increase of 50 percent. While this may sound significant, a change of one case does not represent a meaningful increase in the burden of disease. Although disease rates were calculated for counties reporting fewer than five cases, rates based on low case counts are

considered statistically unreliable. Caution is recommended in interpreting trends or comparing across counties.

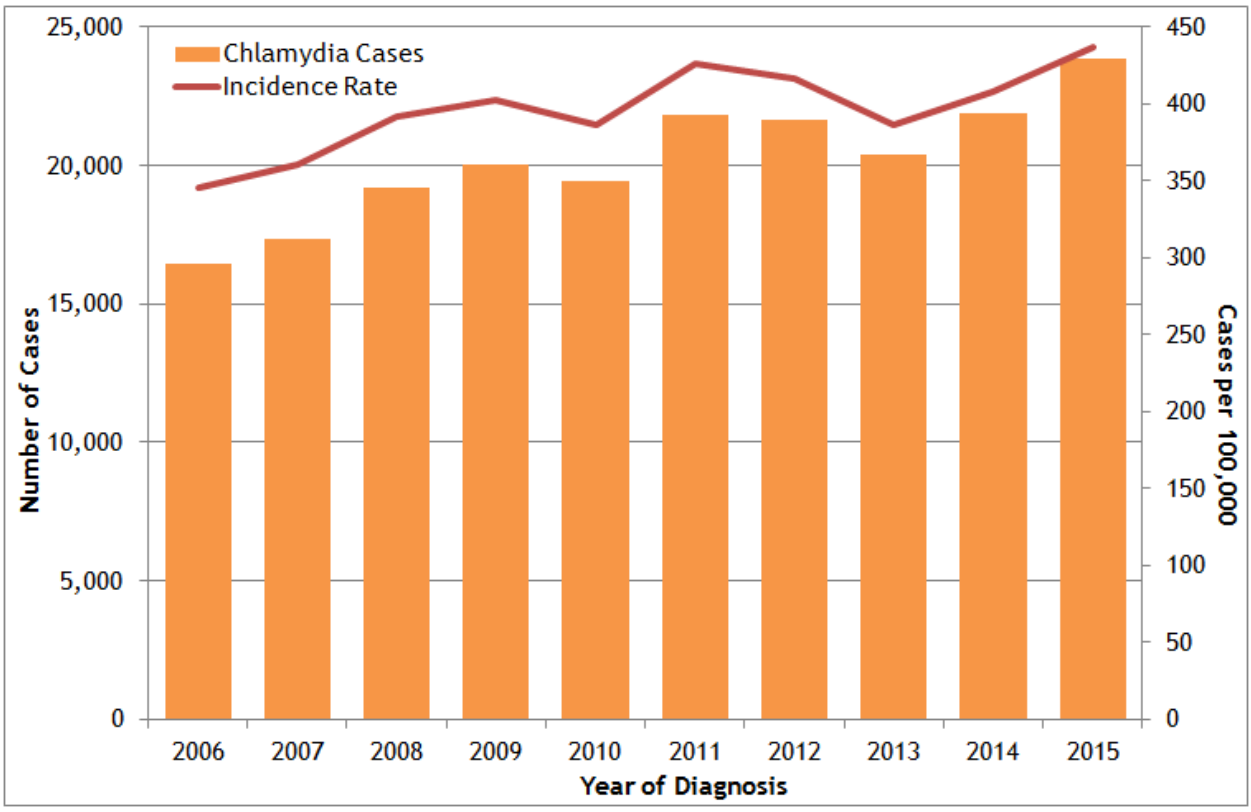
4. Data are presented for all reported cases and are known not to be 100% complete. Factors that impact the completeness and accuracy of STI data include:
    - Level of STI screening by health care providers
    - Individual test-seeking behavior (awareness of illness often depends on whether individual is symptomatic or not)
    - Sensitivity of diagnostic tests
    - Compliance with case reporting
    - Completeness of case reporting
    - Timeliness of case reporting
5. Increases and decreases in STI rates can be due to actual changes in disease occurrence and/or changes in one or more of the above factors.
6. CDPHE does not maintain statistics for other, non-reportable STI, e.g. herpes, HPV, genital warts, but does maintain statistics for HIV and Hepatitis C, which are not included in this report.
7. Early syphilis comprises of Primary & Secondary (P&S) syphilis, which is symptomatic, and Early Latent (EL) syphilis, which is asymptomatic. Syphilis infectivity varies based on its presentation; while P&S syphilis is considered to be highly infective, EL syphilis is not. For this reason, public health programming may base interventions and evaluation methods on P&S syphilis infection rate alone. That said, given the morbidity of both P&S and EL syphilis, we have included information on both presentations.
8. Trends in chlamydia incidence rates are not only influenced by changes in incidence of infection but also changes in screening practices. As chlamydia infection is usually asymptomatic, incidence rate may appear to increase simply because of increases in screening. For this reason, Health People 2020 objectives focus on increasing chlamydia screening rather than decreasing incidence rate. Chlamydia rate changes over time should be interpreted with caution.

Anyone with questions about how these data should be interpreted is encouraged to contact the STI/HIV Surveillance Program at (303) 692-2700.

Chlamydia Infections

Chlamydia remains the most commonly reported STI in Colorado. In 2015, there were 23,857 cases diagnosed and reported for a statewide crude incidence rate of 437.2 per 100,000 persons. **Figure 1** shows annual case counts and rates of chlamydia in Colorado from 2006 to 2015. Cases and rates have increased steadily from 2006 to 2015, with two dips that were each statistically insignificant from the prior year. According to the Centers for Disease Control and Prevention (CDC), the US chlamydia rate increased from 456.1 per 100,000 reported in 2014[2] to 478.8 per 100,000 in 2015.[3]

Figure 1: Chlamydia Cases and Incidence Rates, Colorado, 2006-2015



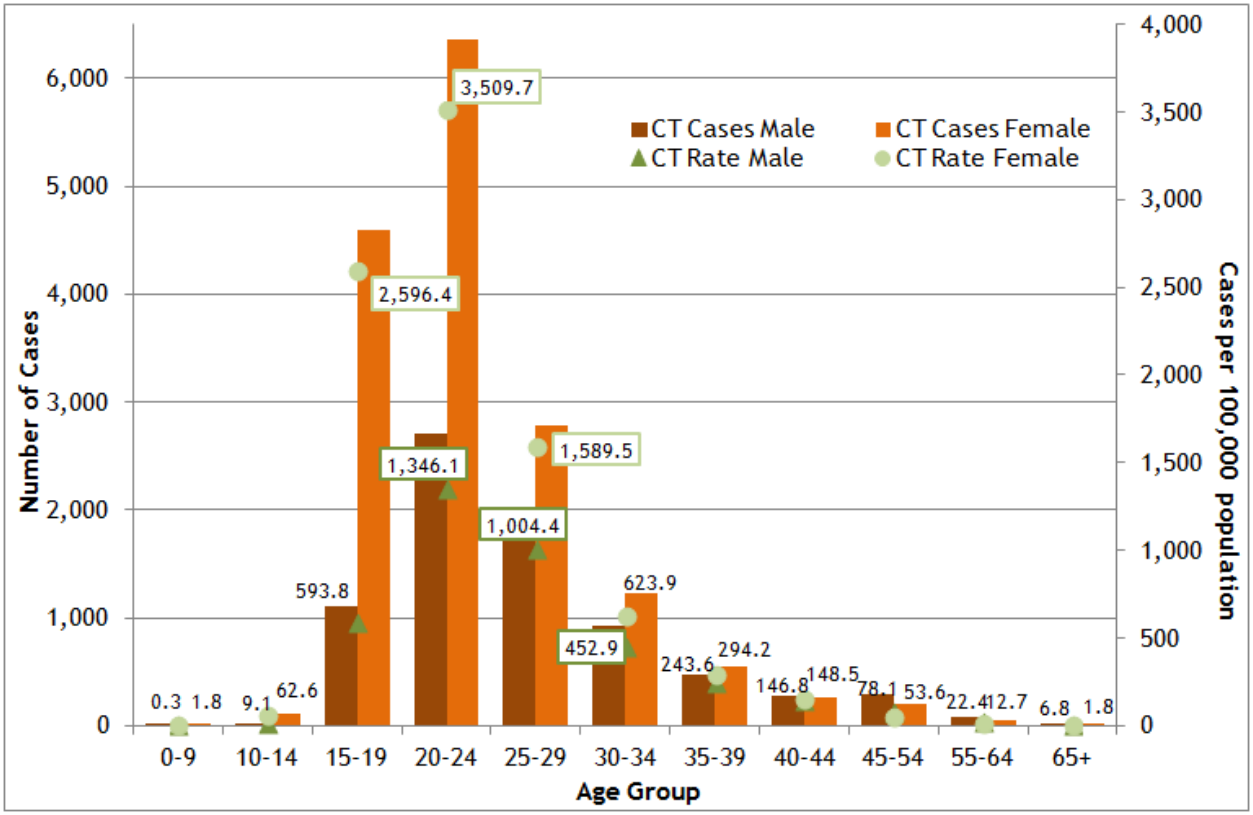
Case rates per 100,000 vary significantly by gender and age. The chlamydia incidence rate is two times greater among females, 529.3 per 100,000, than males, 282.3 per 100,000 in 2015 (**Table 2**). Rates are highest among adolescents and young adults for both males and females.

[2] Centers for Disease Control and Prevention. *Sexually Transmitted Disease Surveillance 2014*. Atlanta: U.S. Department of Health and Human Services; Nov 2015. http://www.cdc.gov/std/stats.
[3] Centers for Disease Control and Prevention. *Sexually Transmitted Disease Surveillance 2015*. Atlanta: U.S. Department of Health and Human Services; Oct 2016. http://www.cdc.gov/std/stats.

Figure 2 shows age and gender case counts and rates for chlamydia diagnosed in 2015. The mean age at diagnosis is 25.0 with a range of 0 to 83 years of age. Females account for more than two-thirds (67.7%) of the chlamydia cases. Among 15-19 year olds, the chlamydia rate for females, 2,596.4 per 100,000, is over four times greater than the rate for males, 593.8 per 100,000.

The marked difference in case rates by gender is primarily an artifact of screening efforts which target females in reproductive health settings. To a lesser degree, this difference may also reflect the natural history of chlamydia infections. Males may be less susceptible to infection, are generally asymptomatic, and are less likely to access health services and receive routine screening. The result of these factors is the burden of chlamydia infections among males remains largely undiagnosed, untreated and unreported. Rates of reported chlamydia infections among women have been increasing annually since the late 1980s when public programs for screening and treatment of women were first established to prevent pelvic inflammatory disease (PID) and related complications.

Figure 2: Chlamydia Cases and Rates by Gender and Age Group, Colorado, 2015



Persons of color continue to be disproportionately affected by STIs. Non Hispanic Blacks represent 4.2 percent of Colorado's population, but represent 7.7 percent of reported chlamydia cases in 2015.

Figure 3 shows the geographical distribution of chlamydia incidence rates for Colorado at the county level. **Figure 4** shows chlamydia infection rates by county for 2015. Denver, Montezuma, and Arapahoe counties had the three highest rates of reported chlamydia infections and accounted for 41.7 percent of chlamydia diagnoses in 2015. As shown in both **Figures 3 & 4** chlamydia infections were largely concentrated in Denver County. In 2015, only two rural counties had no reported chlamydia infections.

Figure 3: Chlamydia Incidence Rates by County Map, Colorado, 2015

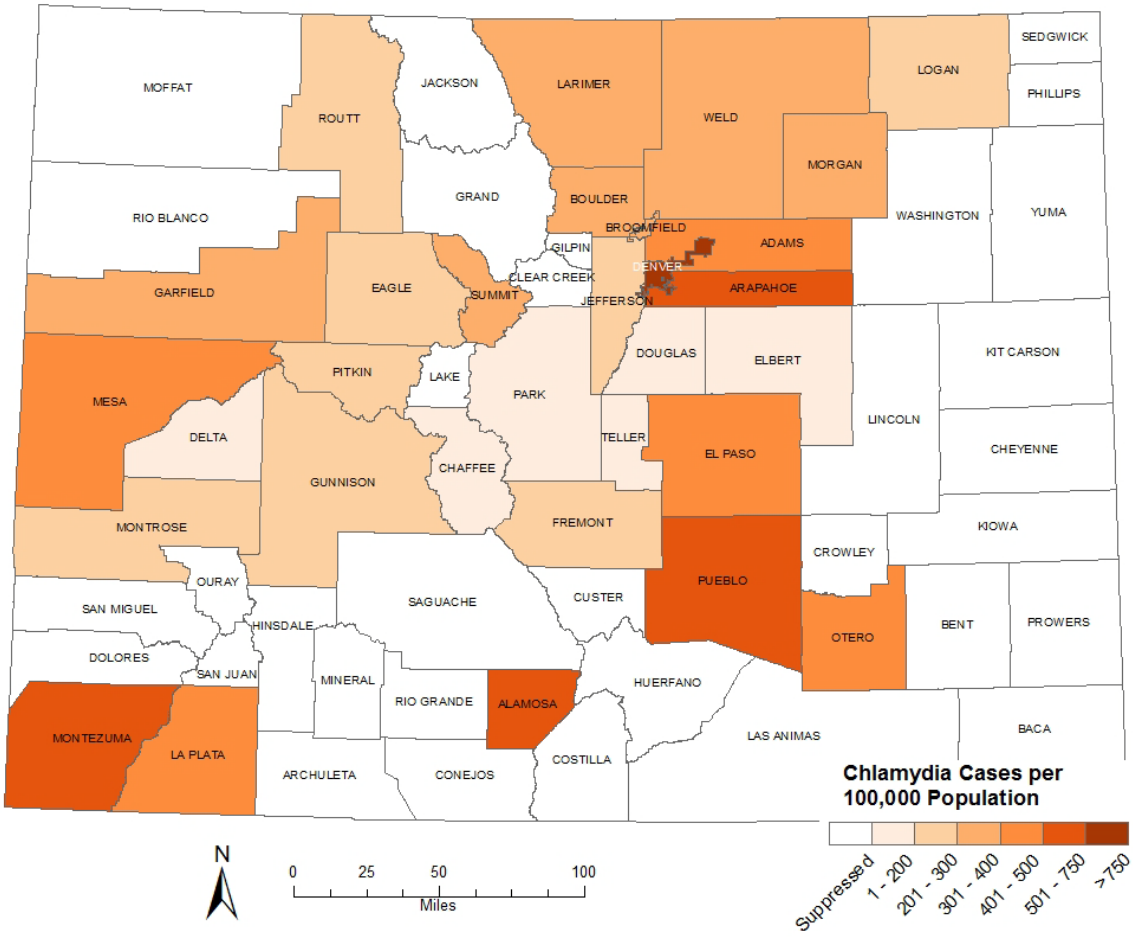
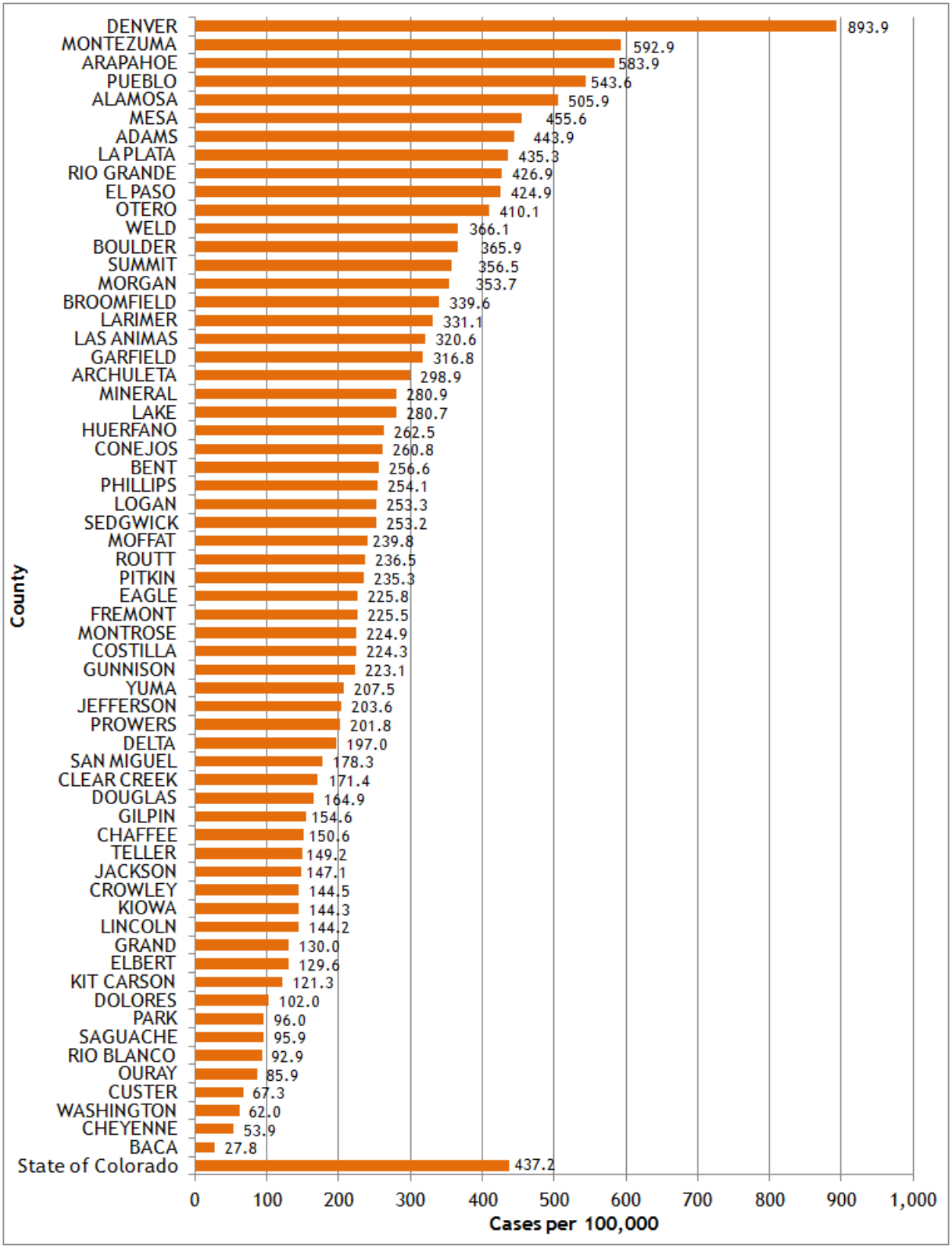


Figure 4: Chlamydia Incidence Rates by County Chart, Colorado, 2015



Gonorrhea Infections

Gonorrhea remains the second most commonly reported STI in Colorado with 4,387 cases reported in 2015, yielding a rate of 80.4 per 100,000 population. According to CDC, the US gonorrhea rate increased from 110.7 per 100,000 reported in 2014[4] to 123.9 per 100,000 in 2015[5].

Figure 5: Gonorrhea Cases and Incidence Rates, Colorado, 2006-2015

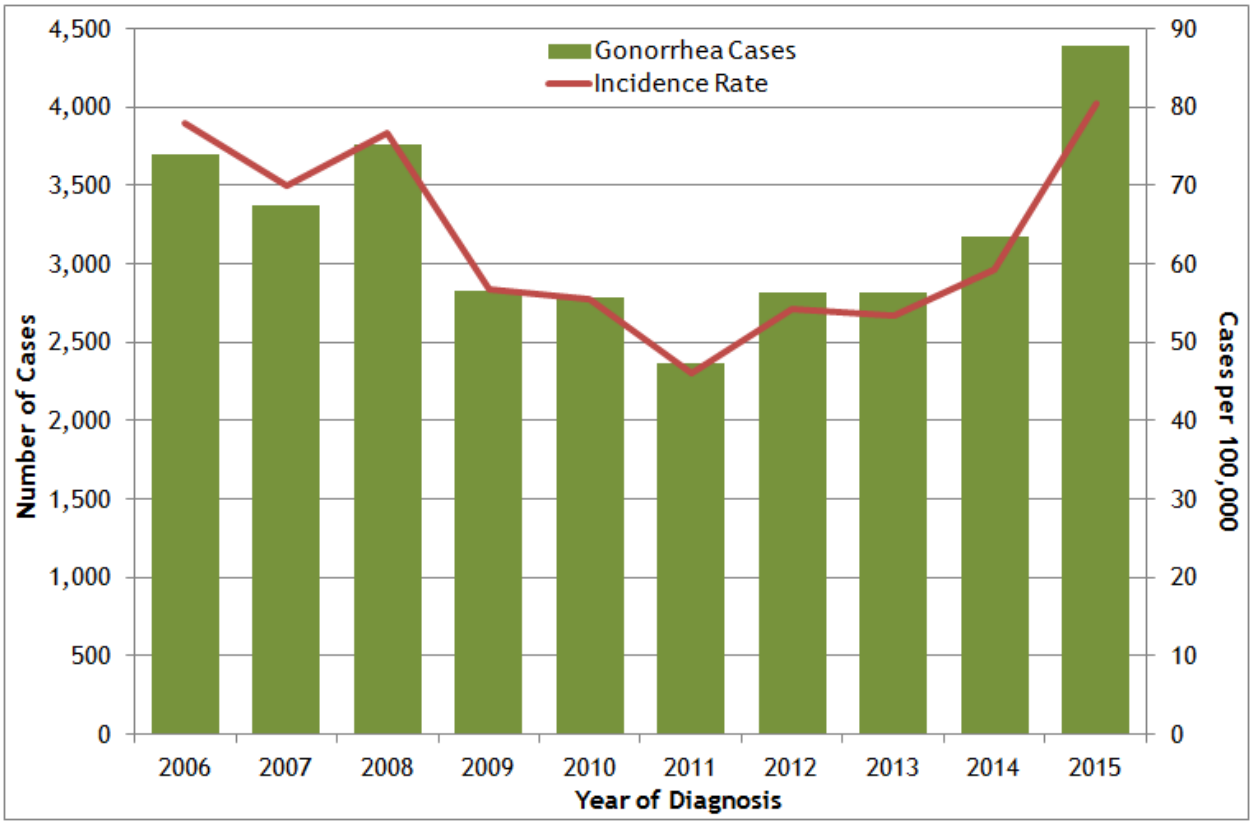


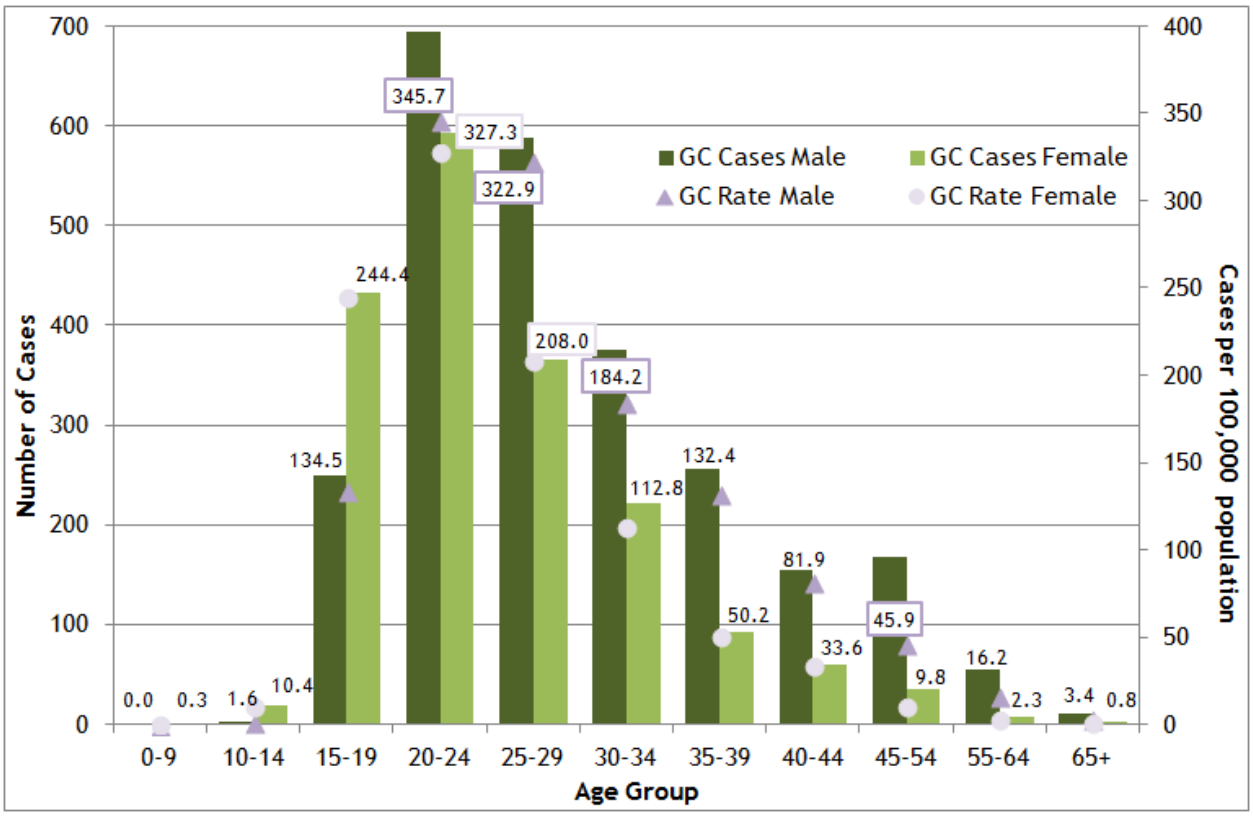
Figure 5 shows cases diagnosed each year and the incidence rate per 100,000 from 2006 to 2015. Over this ten year period, overall gonorrhea rates remained relatively consistent through 2008, with a noted decrease in 2009 followed by another period of consistency. 2014 saw a slight increase followed by a sharp increase in 2015.

Figure 6 shows age and gender case counts for gonorrhea (GC) diagnosed in 2015. The mean age at diagnosis is 28.2 with a range of 0 to 87 years of age. Males account for 58.2 percent of total cases and rates by gender and age are typically higher for males. However, among 15-19

[4] Centers for Disease Control and Prevention. *Sexually Transmitted Disease Surveillance 2014*. Atlanta: U.S. Department of Health and Human Services; Nov 2015. http://www.cdc.gov/std/stats.
[5] Centers for Disease Control and Prevention. *Sexually Transmitted Disease Surveillance 2015*. Atlanta: U.S. Department of Health and Human Services; Oct 2016. http://www.cdc.gov/std/stats.

year olds, the gonorrhea rate for females, 244.4 per 100,000, is almost two times greater than the rate for males, 134.5 per 100,000.

Figure 6: Gonorrhea Cases and Rates by Gender and Age Group, Colorado, 2015



As seen with chlamydia, Non Hispanic Blacks were disproportionately affected by gonorrhea infections in 2015. They represented 4.2 percent of Colorado's population, but represented 16.3 percent of reported gonorrhea cases. **Figure 7** shows gonorrhea case numbers by race/ethnicity for 2015. Racial disparities are seen between Non Hispanic Blacks and other races. The gonorrhea rate for Non Hispanic Blacks compared with Non Hispanic Whites was more than 9 times higher. Compared to Hispanics of all races, the rate for Non Hispanic Blacks was more than 3 times higher.

Figure 7: Gonorrhea Infections and Rates by Race/Ethnicity, Colorado, 2015

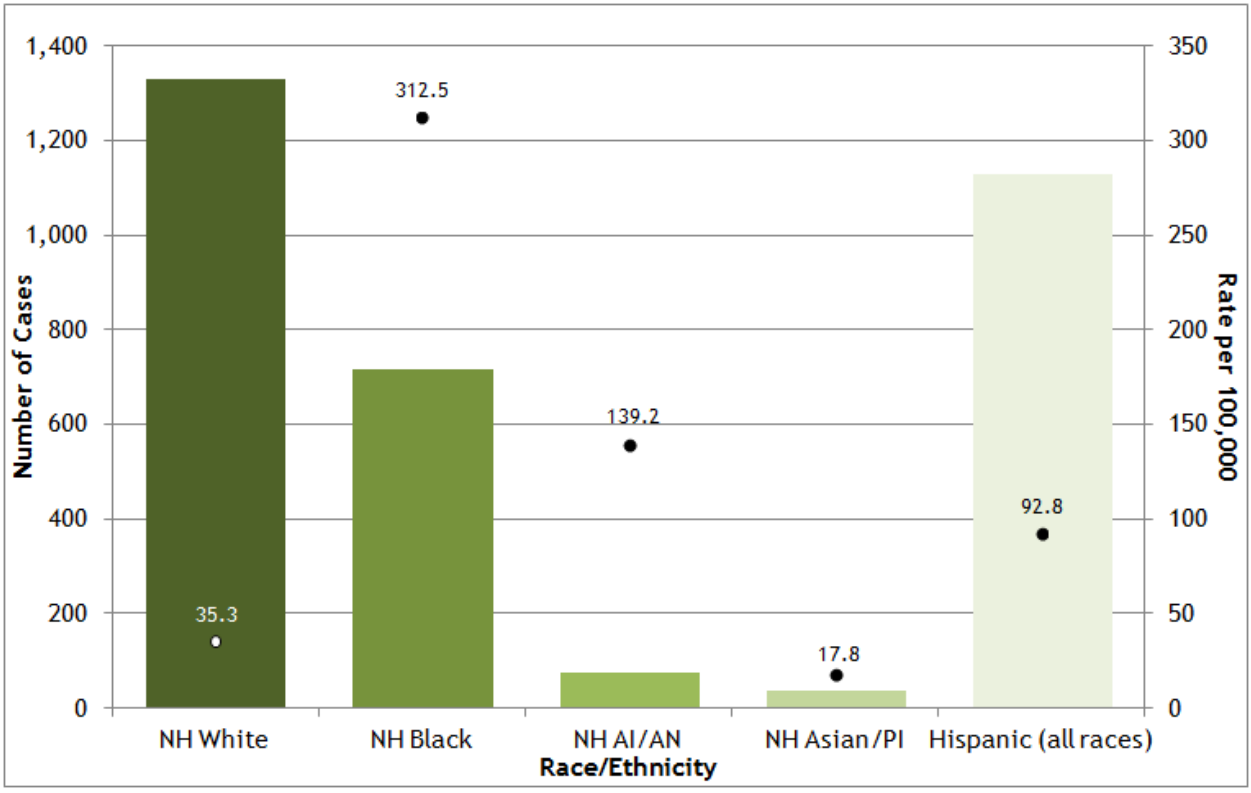
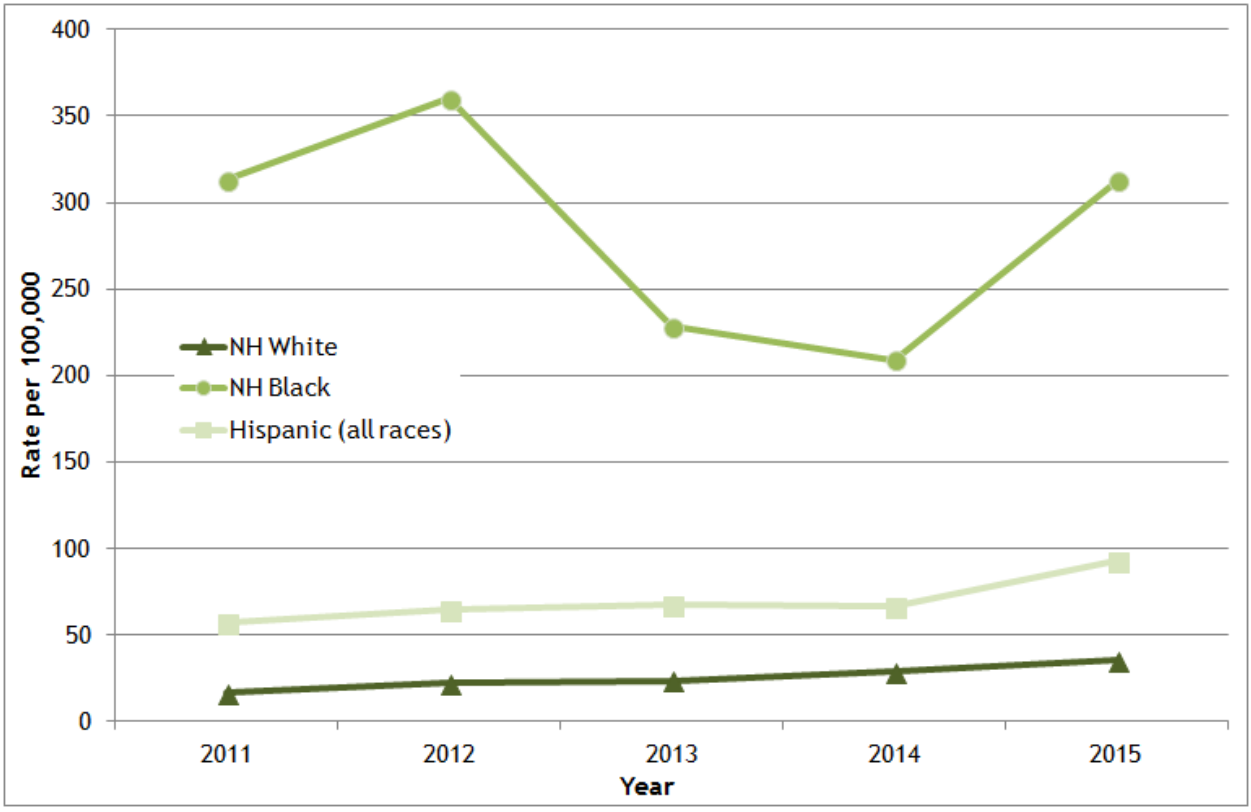


Figure 8 shows the 5-year trend in rates for Non Hispanic Whites, Non Hispanic Blacks and Hispanics. Other races were not displayed due to small numbers. The rate for Non Hispanic Blacks peaked in 2012 followed by a sharp decrease trend in 2013 and a sharp increase in 2015. Both Non Hispanic Whites and Hispanics have had relatively stable rates.

Figure 8: Gonorrhea Infection Rates by Race/Ethnicity, Colorado, 2011-2015



Figures 9 & 10 describe the geographical distribution of gonorrhea incidence rates of Colorado at the county level. The map shows gonorrhea infections are not as widespread as chlamydia. Eighteen rural counties did not report any gonorrhea cases in 2015. A large proportion, 66.4 percent, of all cases were reported in just three counties; Denver, El Paso and Arapahoe, with Denver County accounting for 34.8 percent of reported cases. Denver, Pueblo and Otero have the highest rates of gonorrhea infection.

Figure 9: Gonorrhea Incidence Rates by County Chart, Colorado, 2015

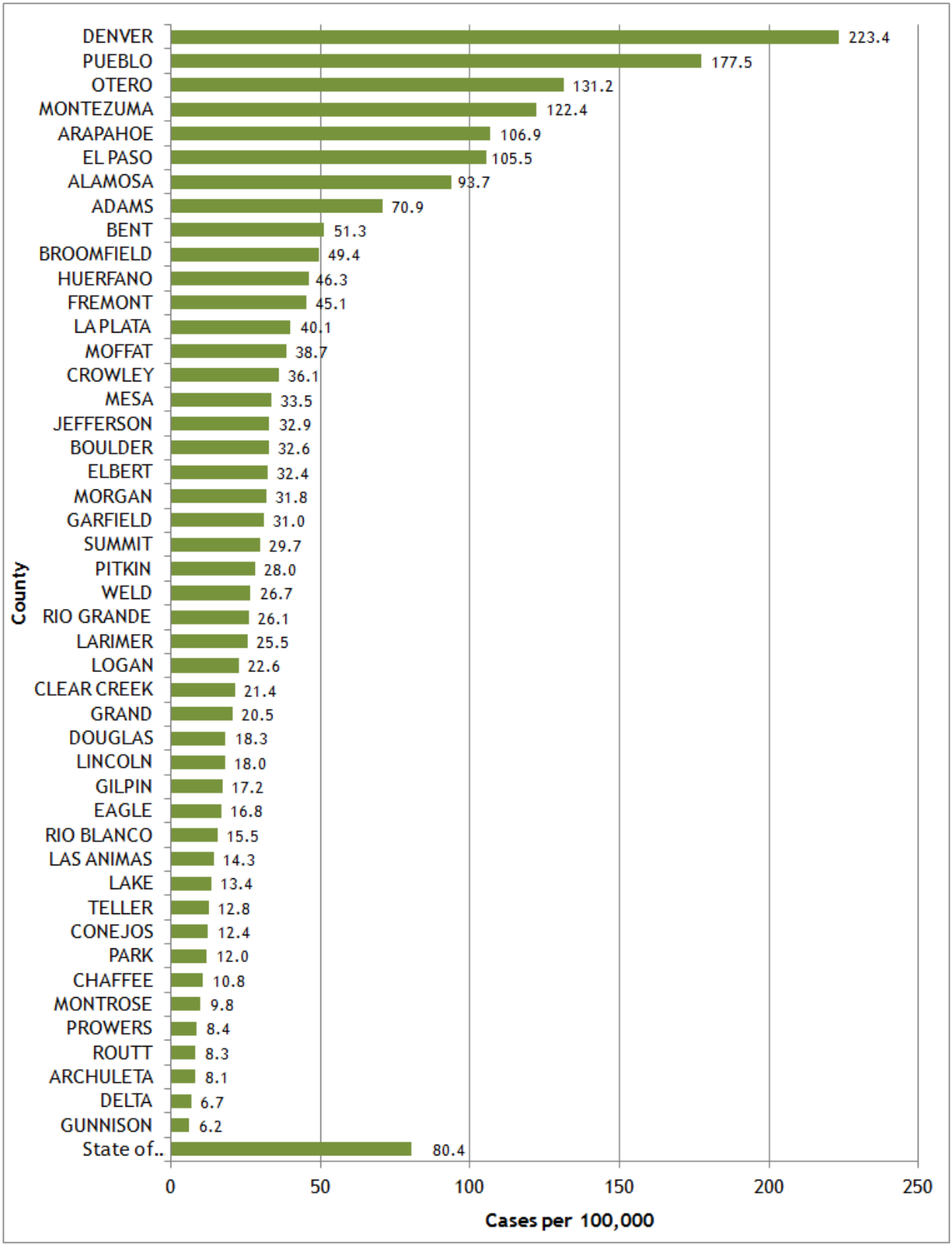
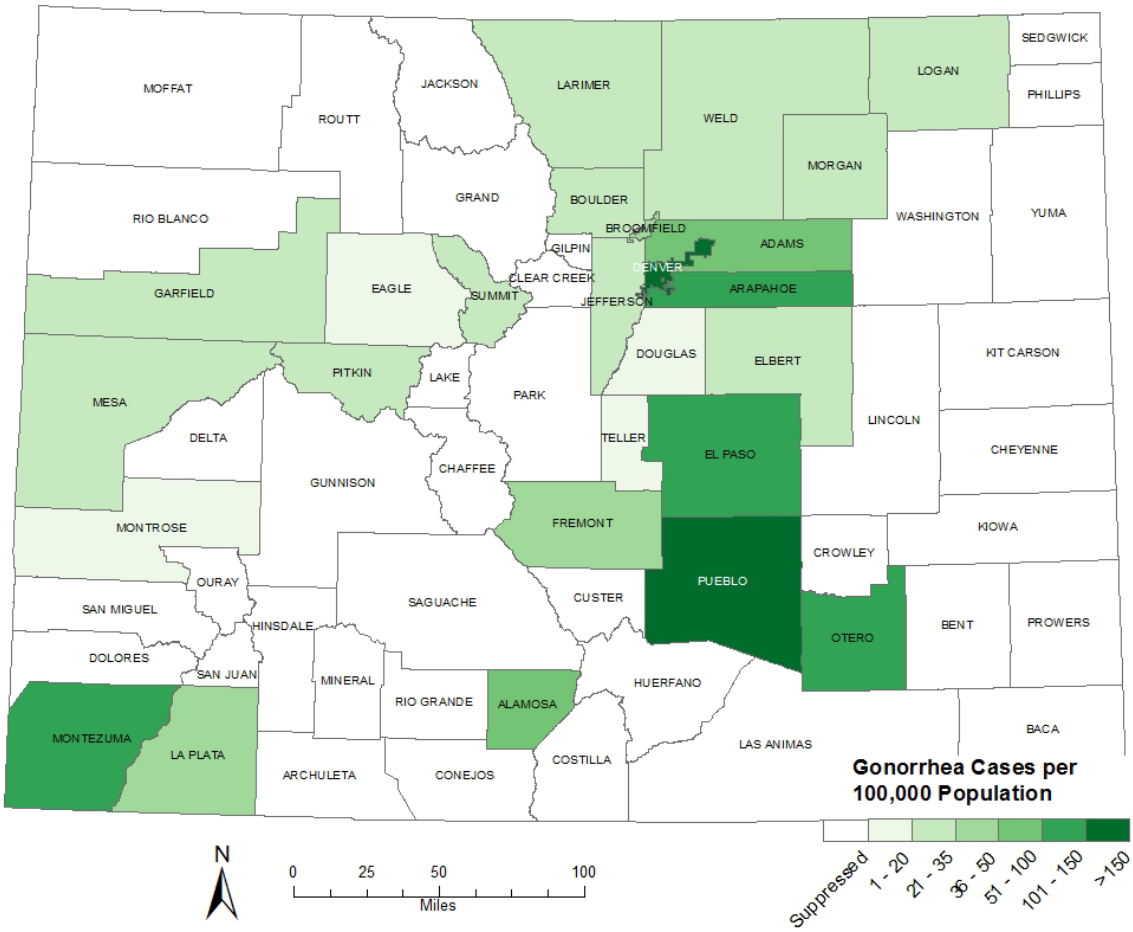


Figure 10: Gonorrhea Incidence Rates by County Map, Colorado, 2015



Primary and Secondary (P&S) Syphilis Infections

There were 245 cases of primary and secondary (P&S) syphilis diagnosed and reported in 2015 and the rate was 4.5 per 100,000. From 2006 to 2015, Colorado reported a 2.5 times increase in P&S syphilis cases as shown in **Figure 11**. According to CDC, the US P&S syphilis rate increased from 6.3 per 100,000 reported in 2014[6] to 7.5 per 100,000 in 2015[7].

The syphilis infections are primarily occurring in Non Hispanic White males, representing 55.9 percent of reported primary and secondary cases. Additionally, 80.0 percent of all cases were among men who have sex with men (MSM). In 2015, 43.6 percent of P&S syphilis diagnoses who reported MSM risk, were co-infected with HIV.

Figure 11: Primary & Secondary Syphilis Cases and Incidence Rates, Colorado, 2006-2015

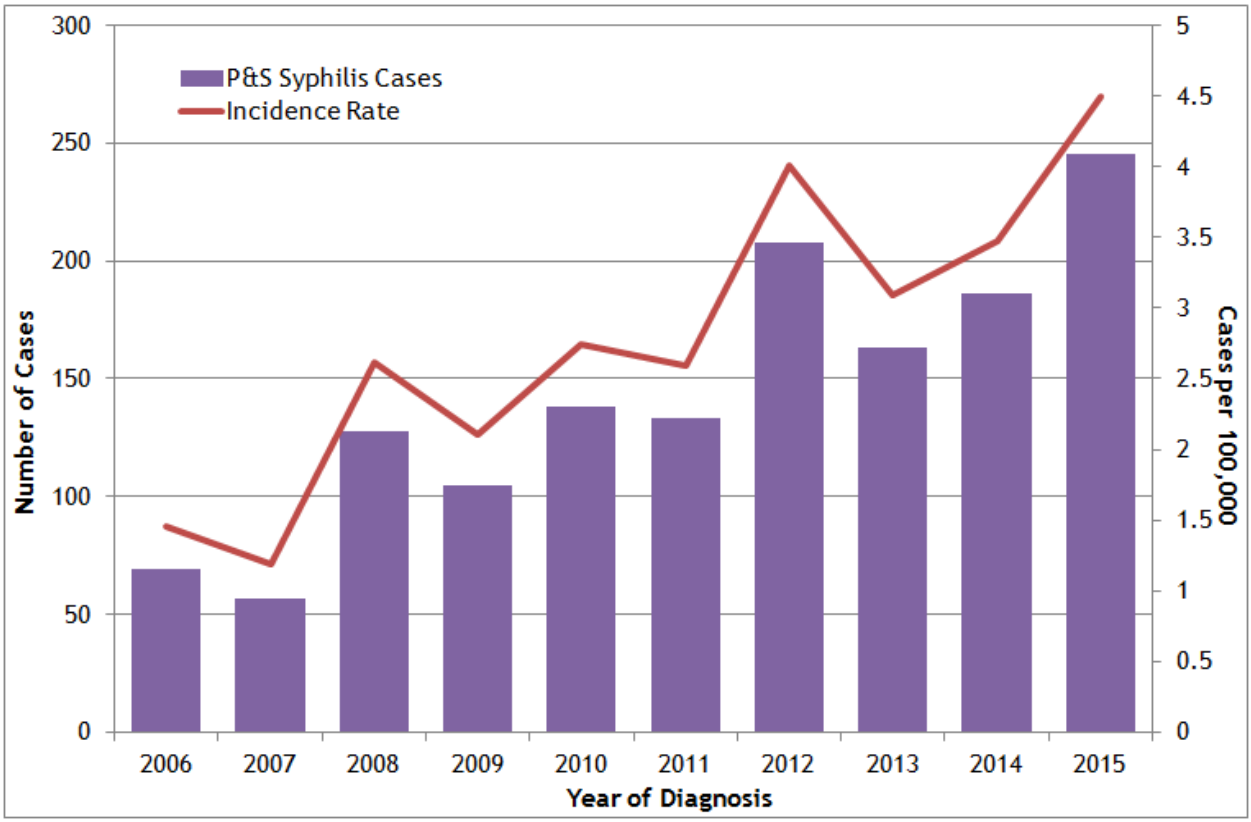
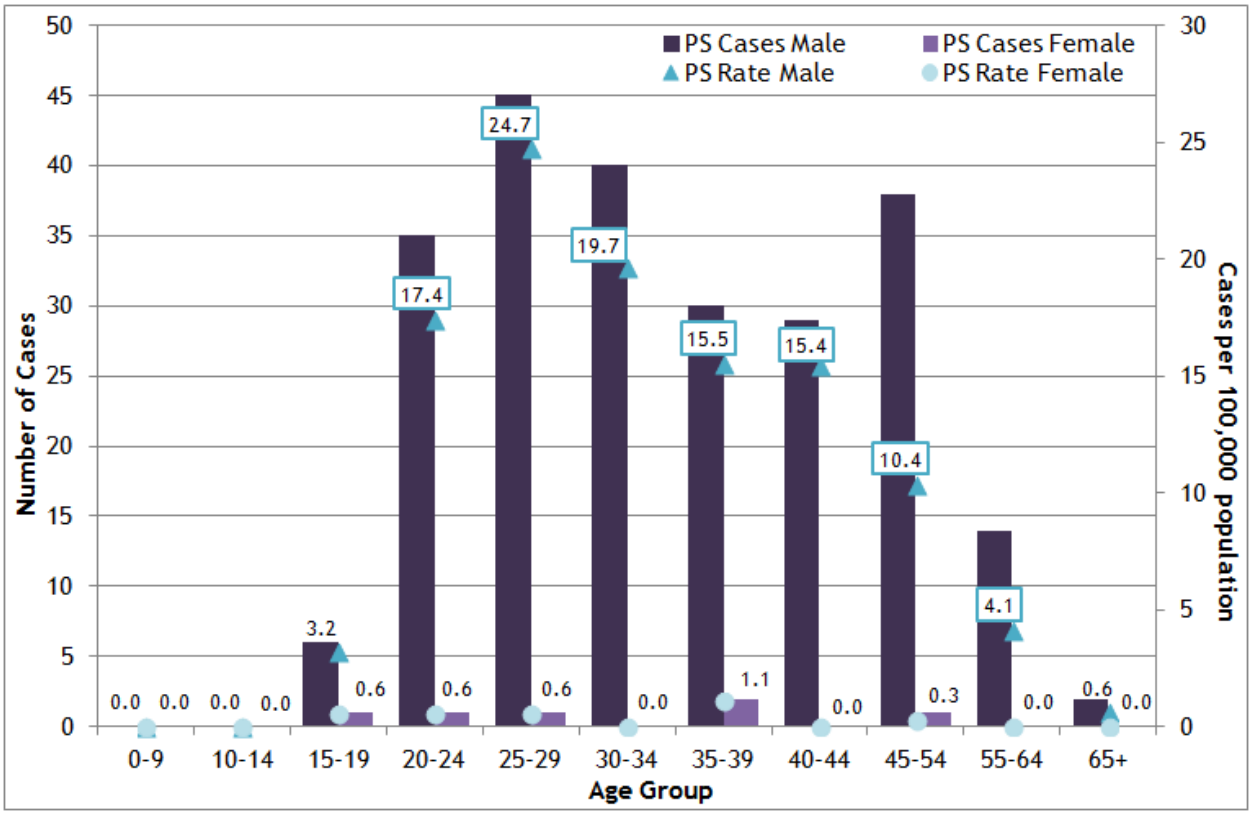


Figure 12 shows age and gender case counts for P&S syphilis diagnosed in 2015. The mean age at diagnosis is 36.2 with a range of 16 to 73 years of age. The highest rates were reported

[6] Centers for Disease Control and Prevention. *Sexually Transmitted Disease Surveillance 2014*. Atlanta: U.S. Department of Health and Human Services; Nov 2015. http://www.cdc.gov/std/stats.
[7] Centers for Disease Control and Prevention. *Sexually Transmitted Disease Surveillance 2015*. Atlanta: U.S. Department of Health and Human Services; Oct 2016. http://www.cdc.gov/std/stats.

among 25-29 year old males whose infection rate was 24.7 cases per 100,000. In 2015, 18.4 percent of the cases occurred among 25-29 year old males followed by 30-34 year old males, accounting for 16.3 percent of all reported primary and secondary syphilis cases.

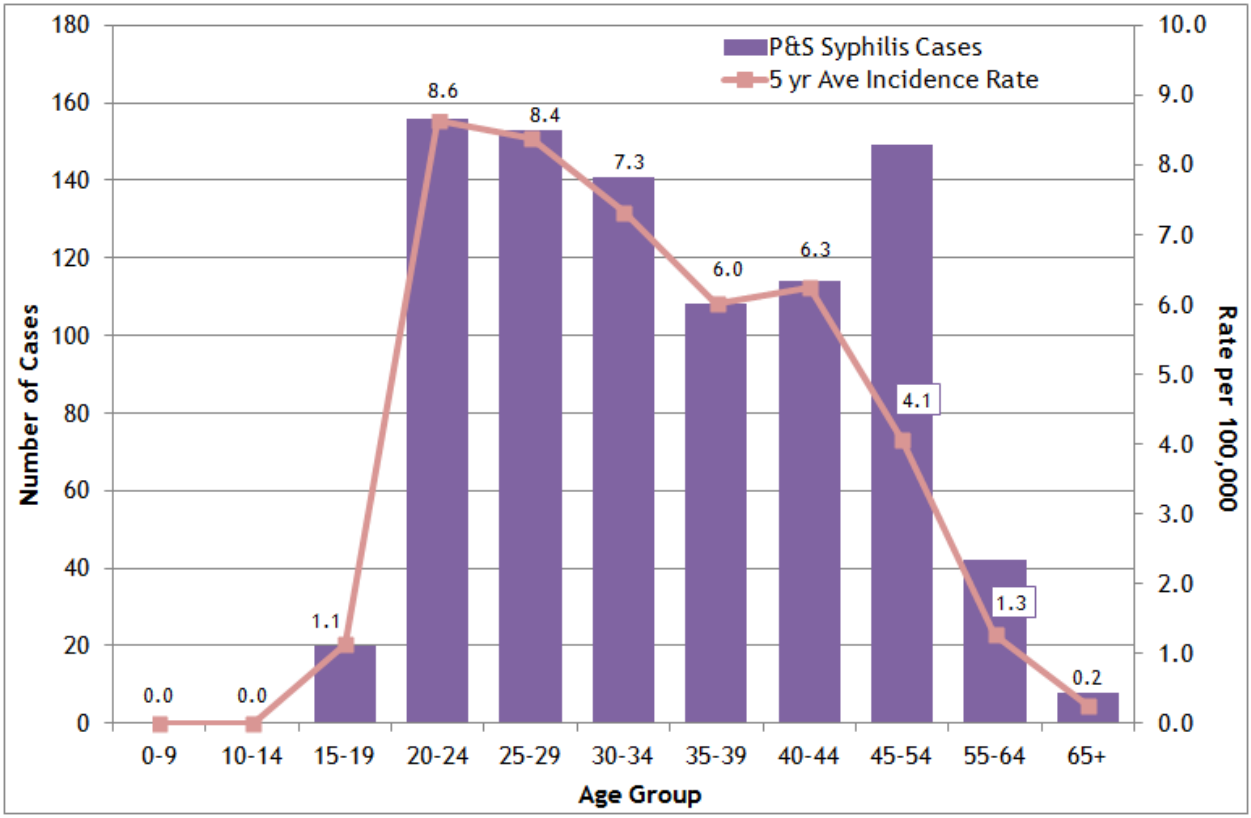
Figure 12: Primary & Secondary Syphilis Cases and Rates by Gender and Age Group, Colorado, 2015



Caution: these rates use small numbers and thus are unstable

Figure 13 below depicts age group case counts and rates for P&S syphilis diagnosed in 2011-15. Since numbers from one year are small, the five-year average rate helps to stabilize the rate and thus produces a more accurate representation of the disease.

Figure 13: Primary & Secondary Syphilis 5-year Cases and Rates by Age Group, Colorado, 2011-2015



More stable than the 1-year incidence rate from Figure 12

Figure 14 shows that the highest rate of P&S syphilis is seen among Non Hispanic Blacks, 11.8 per 100,000 in 2015. The next highest rate is among Hispanics of all races, 5.4 per 100,000. Although Non Hispanic Whites account for the majority of the P&S syphilis cases, 57.6 percent, their infection rate per 100,000 is only higher than Non Hispanic Asian/Pacific Islanders, 1.0 per 100,000, in 2015.

Figure 14: Primary & Secondary Syphilis Incidence Rates by Race/Ethnicity, Colorado, 2015

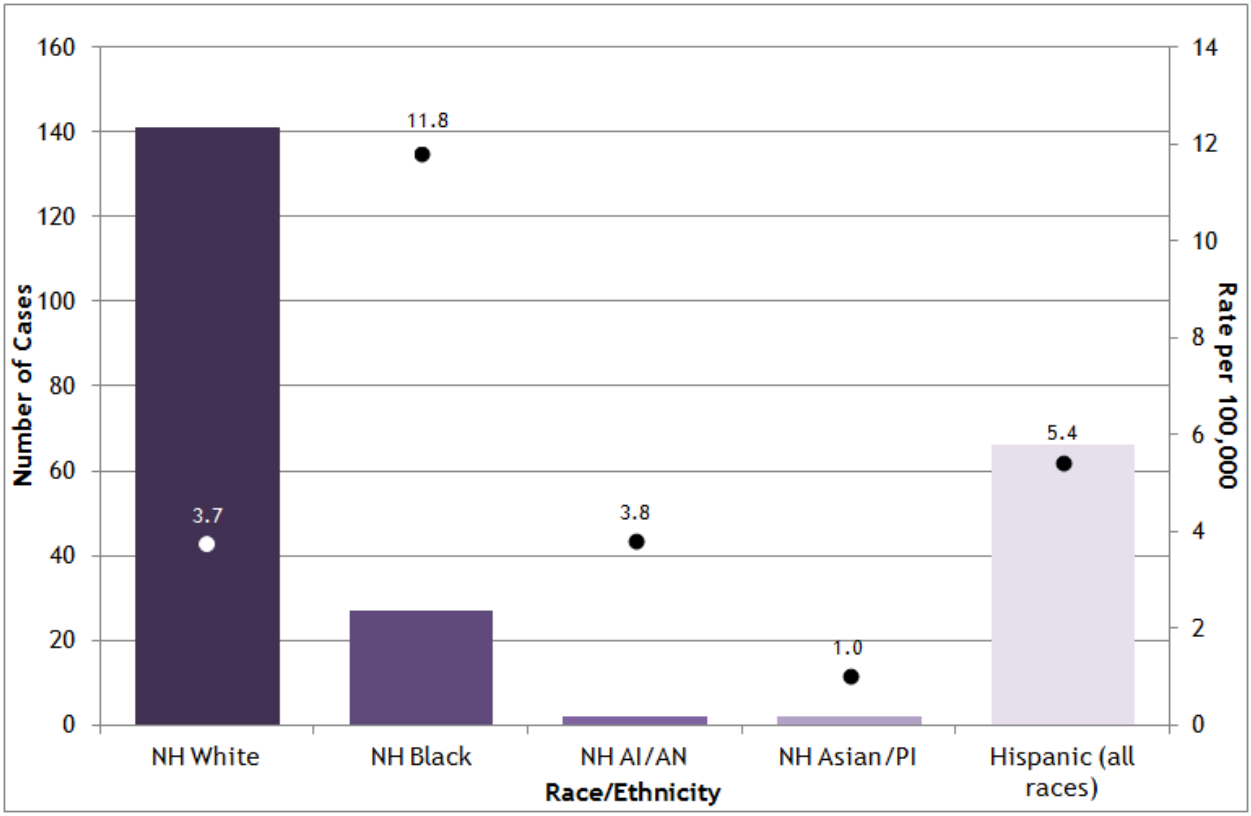
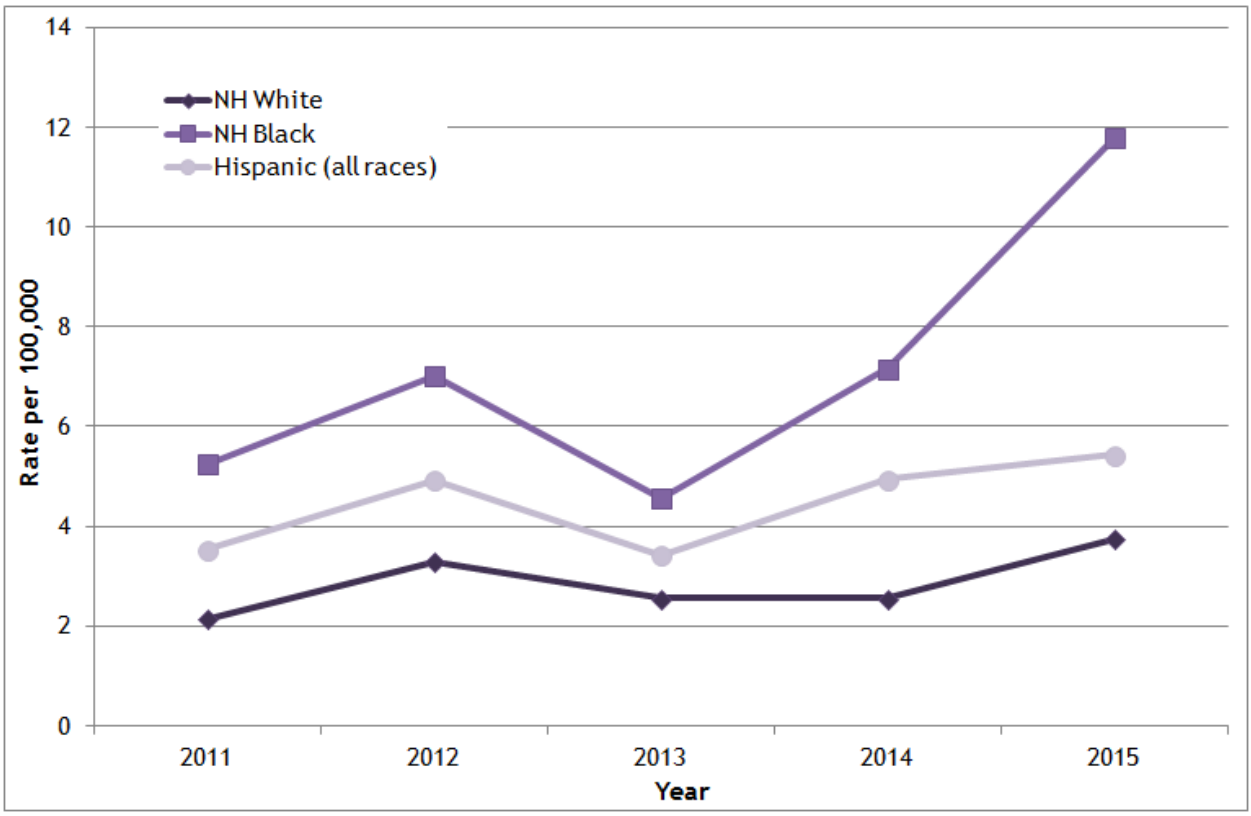


Figure 15 shows the 5 year trend in rates for Non Hispanic Whites, Non Hispanic Blacks and Hispanics. Other races were not displayed due to small numbers. The rate for Hispanics and Non Hispanic Blacks have had an increasing trend 2014-2015 though Hispanics have seen a sharper increase. The rates for Non Hispanic Whites have been relatively stable.

Figure 15: Primary & Secondary Syphilis Infection Rates by Race/Ethnicity, Colorado, 2011-2015



Figures 16 & 17 describe the geographical distribution of P&S syphilis incidence rates for Colorado at the county level. The map shows P&S syphilis infections have been diagnosed in 19 of 64 counties with Denver County reporting the highest proportion of cases, 47.8 percent in 2015. The highest rates were in Rio Grande, Denver, and San Miguel Counties with a rate of 17.4, 17.1 and 12.7, respectively. However, the Rio Grande and San Miguel rates were produced from one or two cases and are not reliable. Use caution when interpreting some of these rates as the county may have a small population and small case numbers.

Figure 16: Primary & Secondary Syphilis Incidence Rates by County Chart, Colorado, 2015

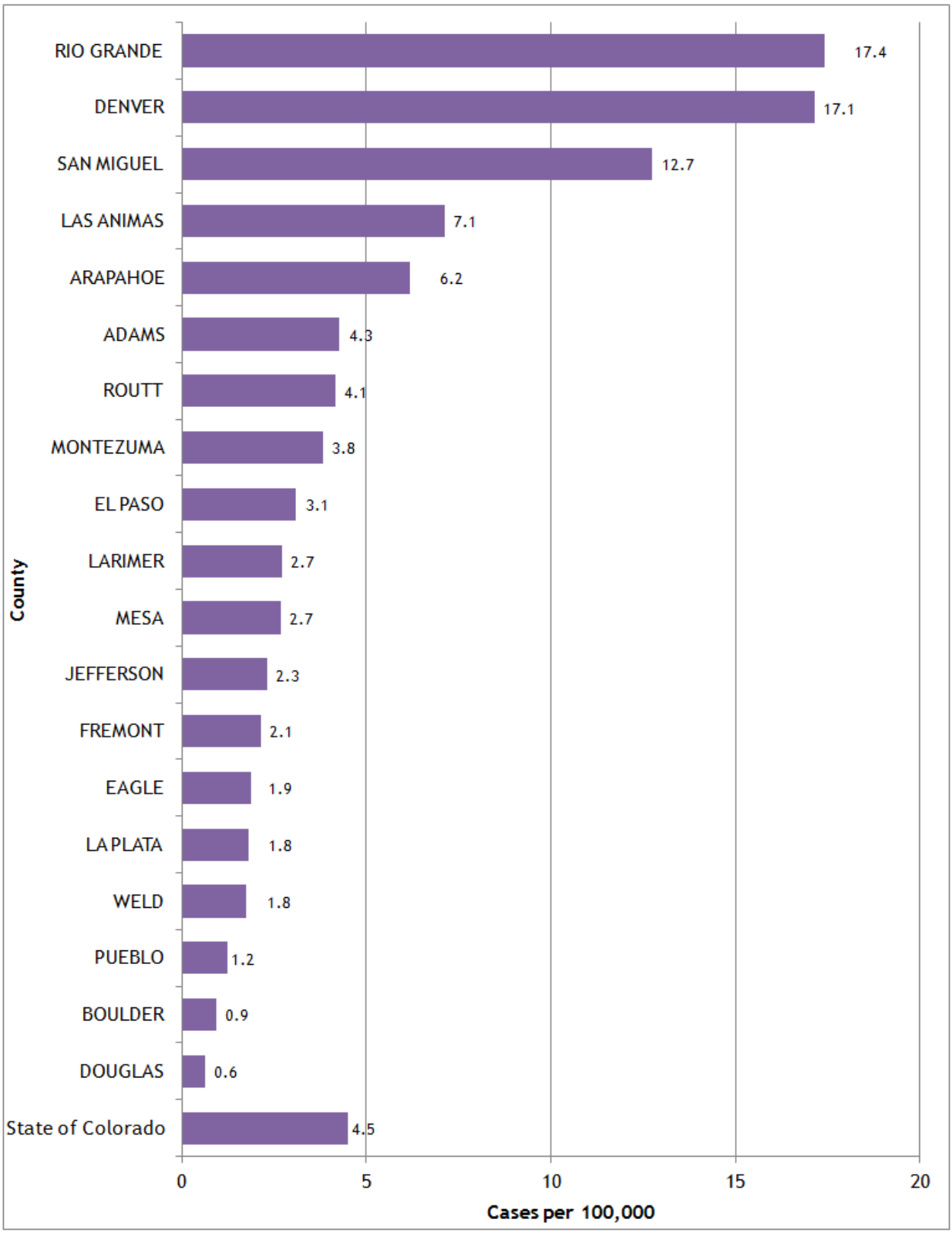


Figure 17: Primary & Secondary Syphilis Incidence Rate by County Map, Colorado, 2015

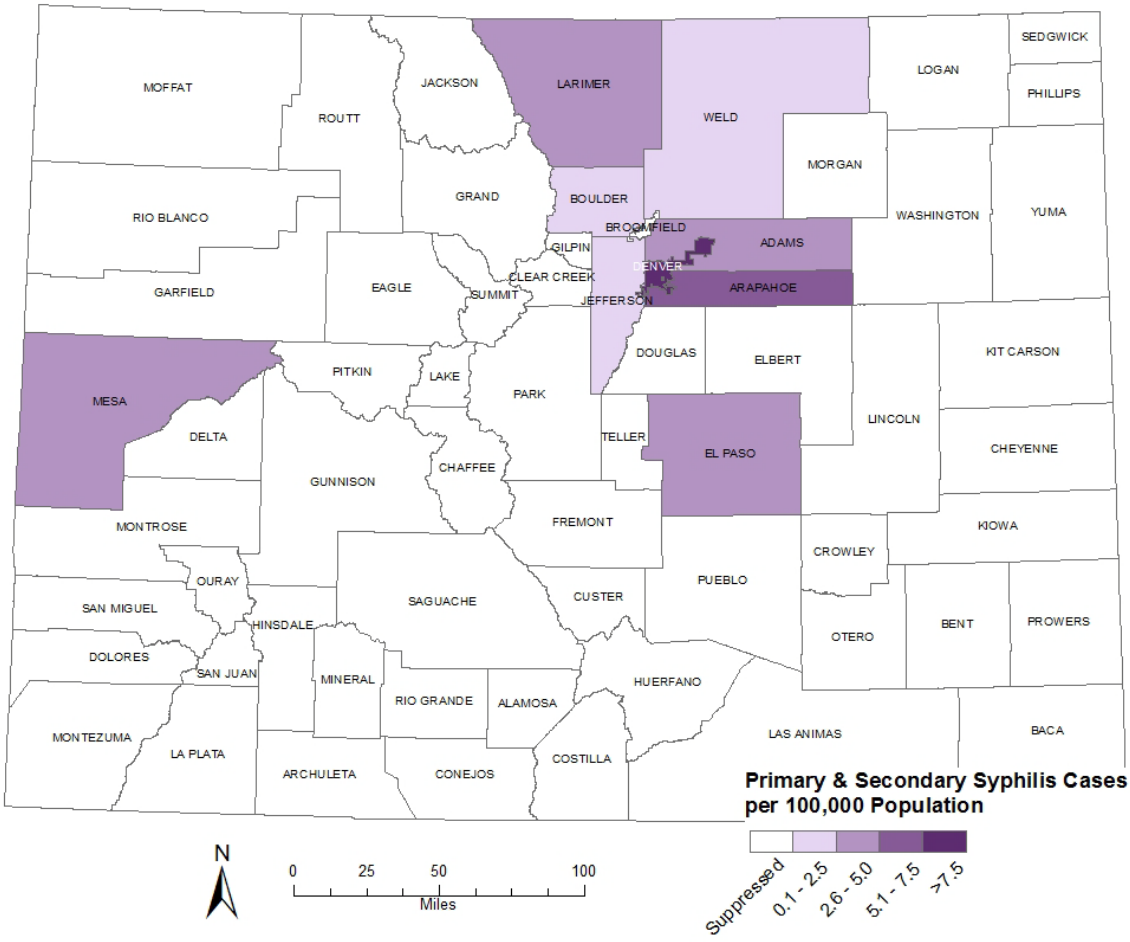
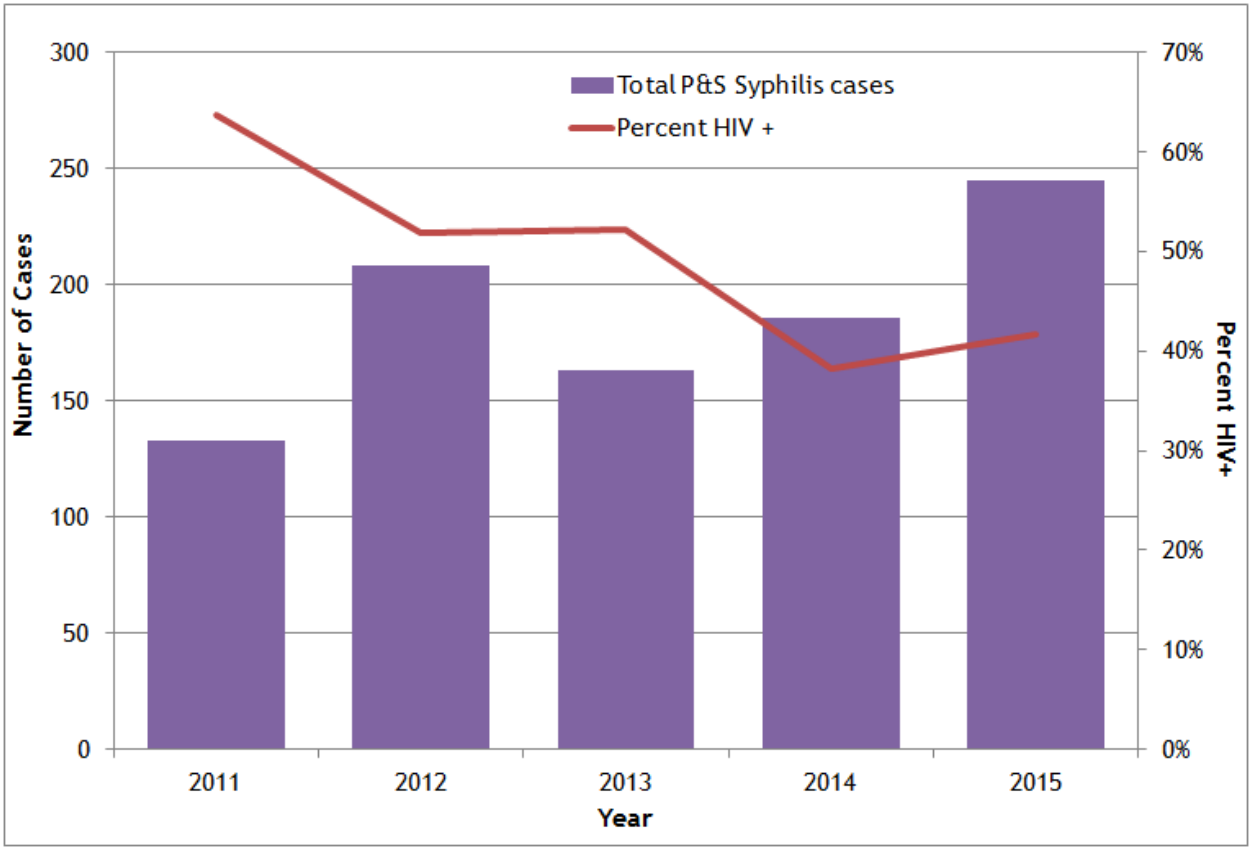


Figure 18 shows the rate of P&S syphilis and HIV co-infections, i.e. percent of syphilis cases with HIV, for 2011-2015. The co-infection rate has ranged from 63.8 percent in 2011 to 38.2 percent in 2014 producing a downward trend. The five-year average for P&S syphilis and HIV co-infections is 48.1 percent.

Figure 18: Primary & Secondary Syphilis Cases and Percent HIV+ by Year of Diagnosis, Colorado, 2011-2015



Early Latent Syphilis Infections

There were 212 cases of early latent (EL) syphilis diagnosed and reported in 2015. Early latent syphilis is latent (no visible signs or symptoms) syphilis where the infection occurred within the past 12 months. From 2006 to 2015, Colorado reported a 4.5 times increase in early latent syphilis cases, as shown in **Figure 19**.

The syphilis epidemic is primarily occurring in Non Hispanic White males, representing 49.5 percent of reported early latent cases. Additionally, 80.0 percent of cases were among men who have sex with men (MSM). In 2015, 47.3 percent of early latent syphilis diagnoses who reported MSM risk were co-infected with HIV.

Figure 19: Early Latent Syphilis Cases and Incidence Rates, Colorado, 2006-2015

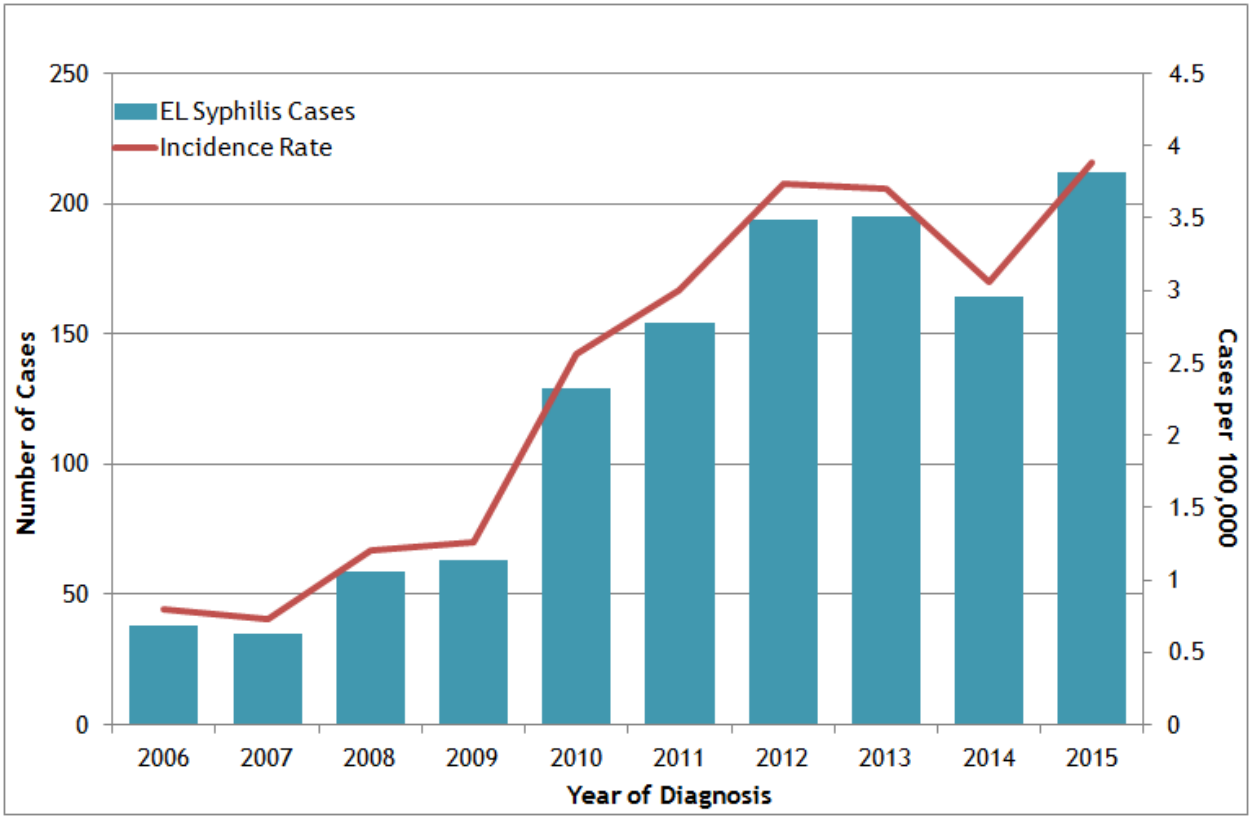
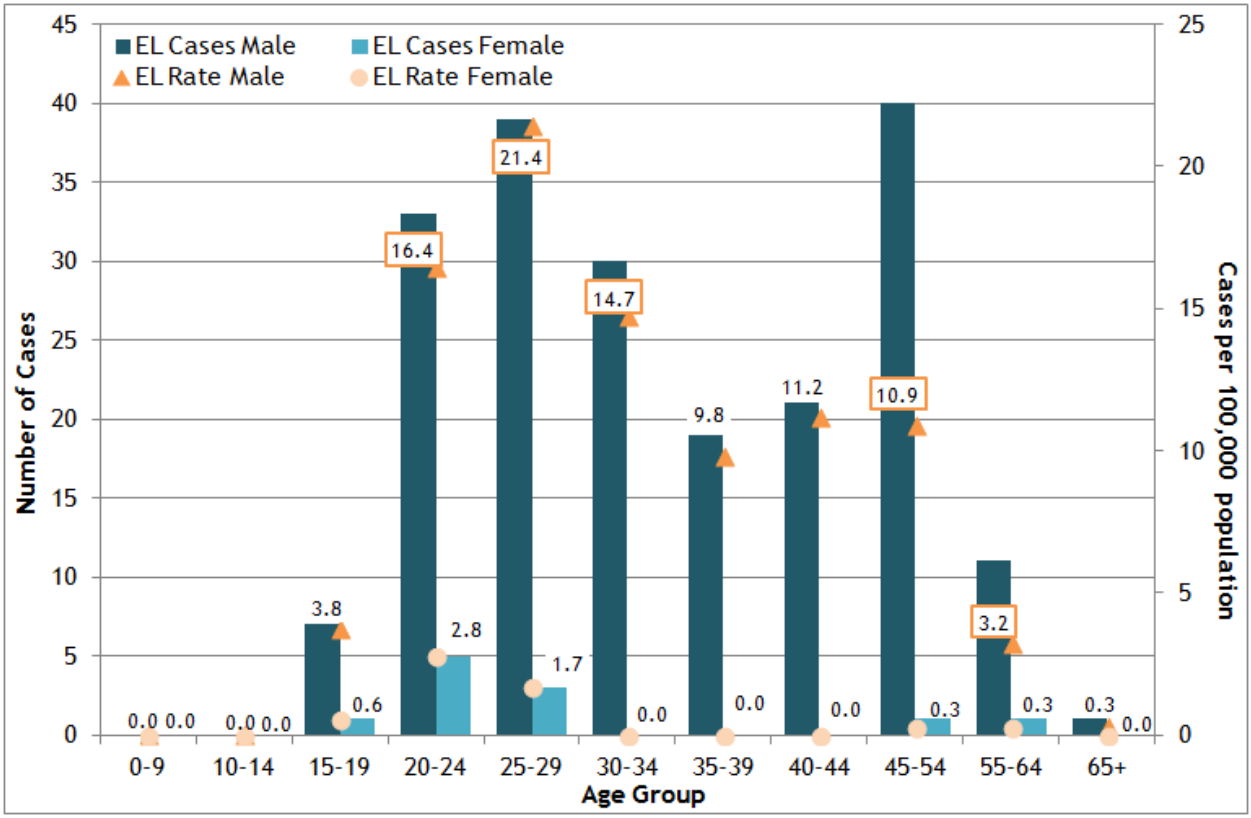


Figure 20 shows age and gender case counts for early latent syphilis diagnosed in 2015. The mean age at diagnosis is 35.4 with a range of 15 to 68 years of age. The highest rates were reported among 25-29 year old males whose infection rate was 21.4 cases per 100,000. In 2015, 18.4 percent of the cases occurred among 25-29 year old males; followed by 20-24 year old males which accounted for 15.6 percent of cases.

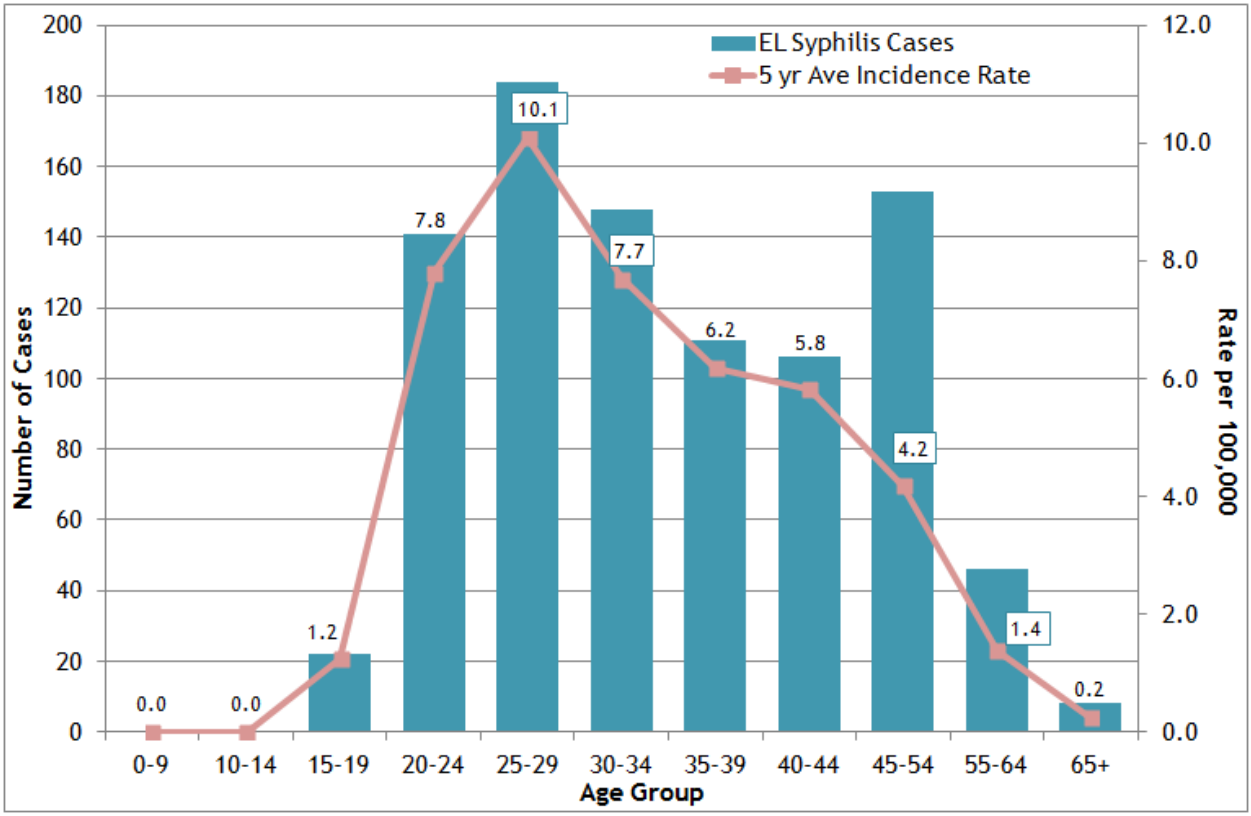
Figure 20: Early Latent Syphilis Cases and Rates by Gender and Age Group, Colorado, 2015



Caution: these rates use small numbers and may be unstable.

Figure 21 below depicts age group case counts and rates for early latent syphilis diagnosed in 2011-15. This five-year average rate helps to stabilize the rate and thus produces a more accurate representation of the disease.

Figure 21: Early Latent Syphilis 5-year Cases and Rates by Age Group, Colorado, 2011-2015



More stable than the 1-year incidence rate from Figure 20

Figure 22 shows that the highest rate of early latent syphilis is seen among Non Hispanic Blacks, 13.1 per 100,000 in 2015. The highest proportion of early latent is among Non Hispanic Whites, accounting for 50.9 percent, however their infection rate is one of the lowest at 2.9 per 100,000, only higher than Non Hispanic Asian/Pacific Islanders, 1.0 per 100,000.

Figure 22: Early Latent Syphilis Incidence Rates by Race/Ethnicity, Colorado, 2015

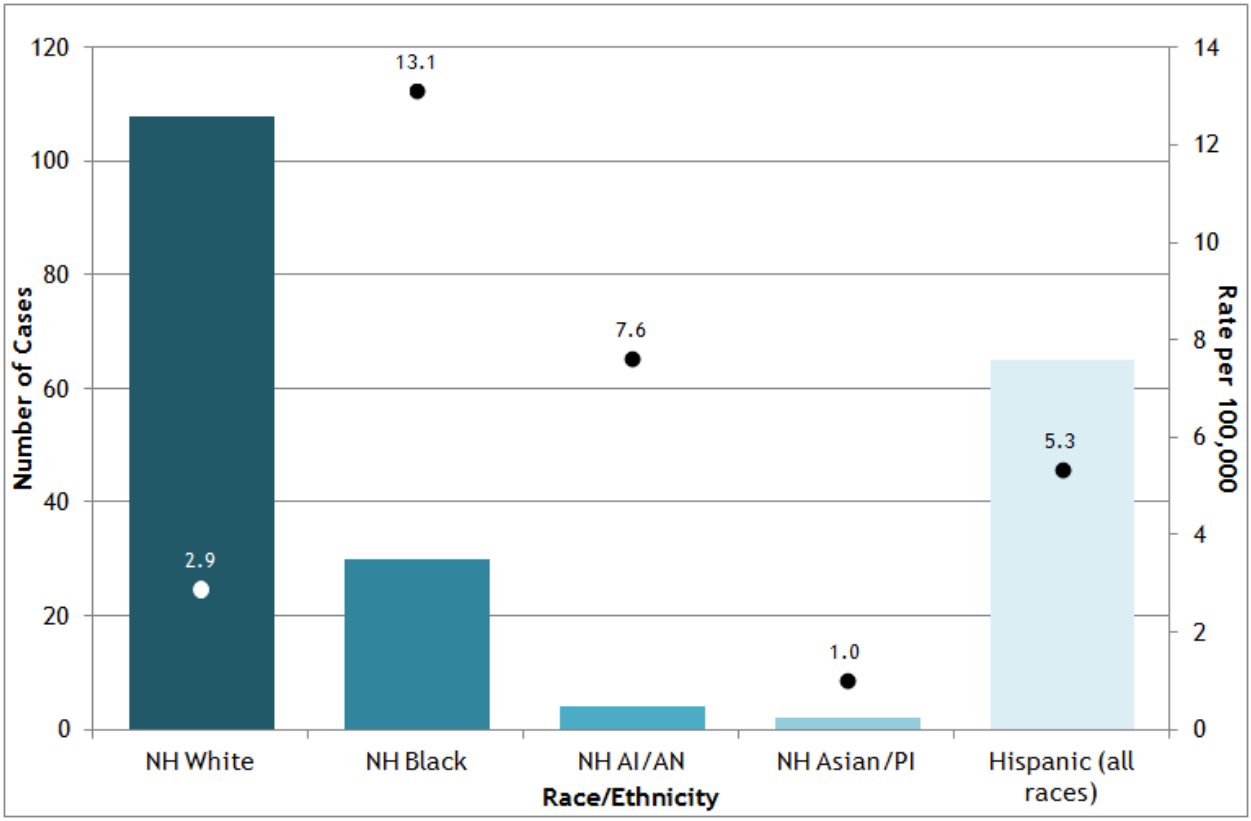
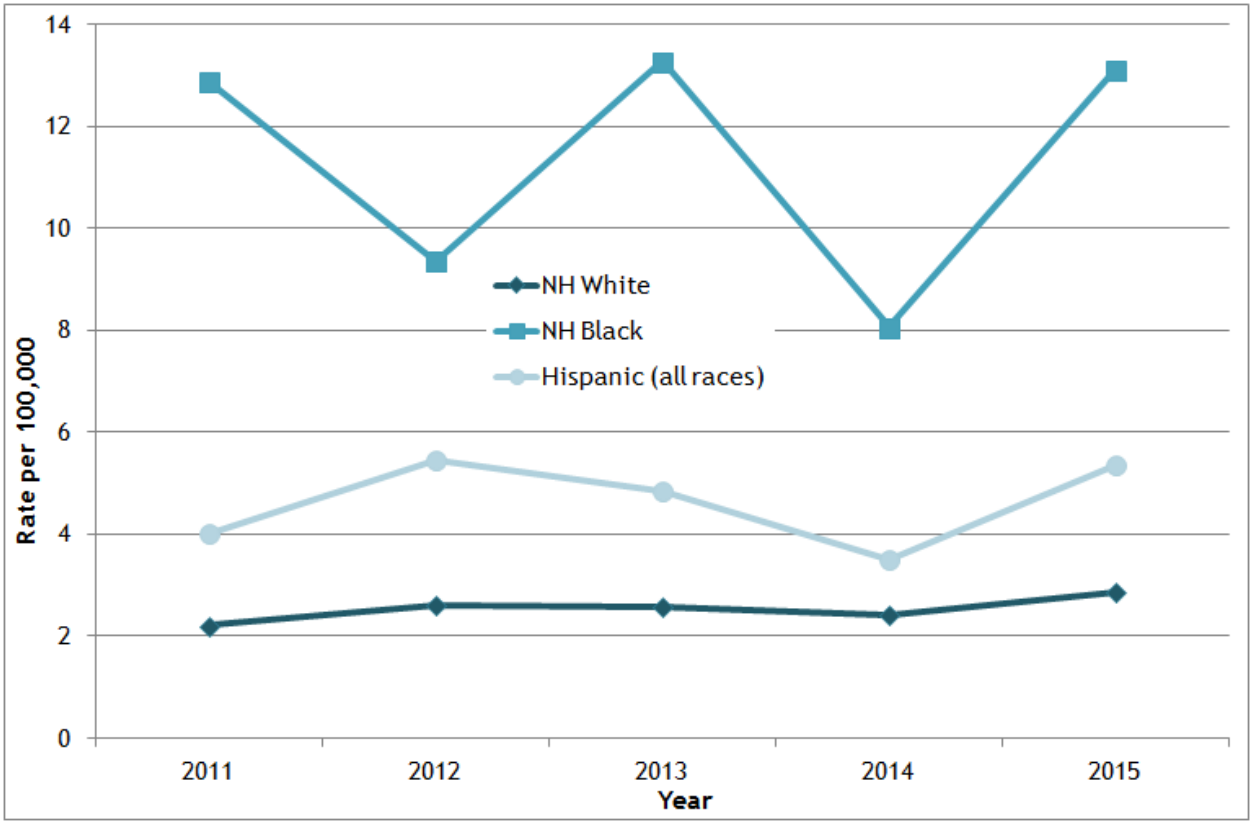


Figure 23 shows the 5 year trend in rates for Non Hispanic Whites, Non Hispanic Blacks and Hispanics. Other races were not displayed due to small numbers. The rates have been relatively stable for Non Hispanic Whites. Non Hispanic Blacks have been unstable, ranging from 8.1 in 2014 to 13.3 in 2013. Hispanics have also be unstable following an increase from 2014 to 2015.

Figure 23: Early Latent Syphilis Infection Rates by Race/Ethnicity, Colorado, 2011-2015



Figures 24 & 25 describe the geographical distribution of early latent syphilis incidence rates for Colorado at the county level. The map shows early latent syphilis infections have been diagnosed in residents of 16 of 64 counties with Denver County reporting the highest proportion and highest stable rate of cases, 49.5 percent and 15.4 per 100,000 population in 2015. The highest rate was Lincoln County with a rate of 18.0 per 100,000, however this rate is calculated with only one case and thus is unstable. The next three highest rates are in Arapahoe, Mesa and Logan Counties (**Table 1**). Use caution when interpreting some of these rates as the county may have a small population and small case numbers.

Figure 24: Early Latent Syphilis Incidence Rates by County Chart, Colorado, 2015

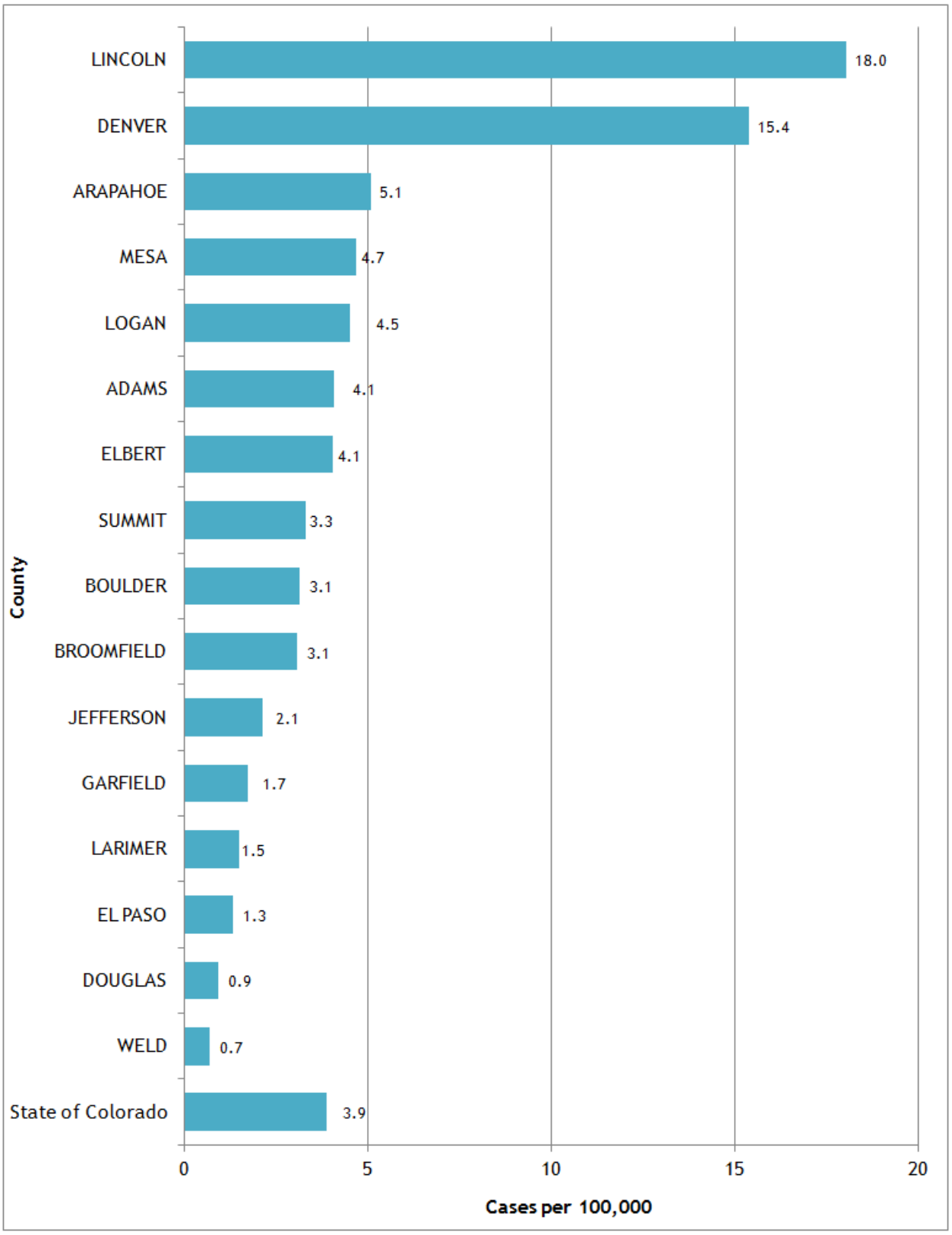


Figure 25: Early Latent Syphilis Incidence Rate by County Map, Colorado, 2015

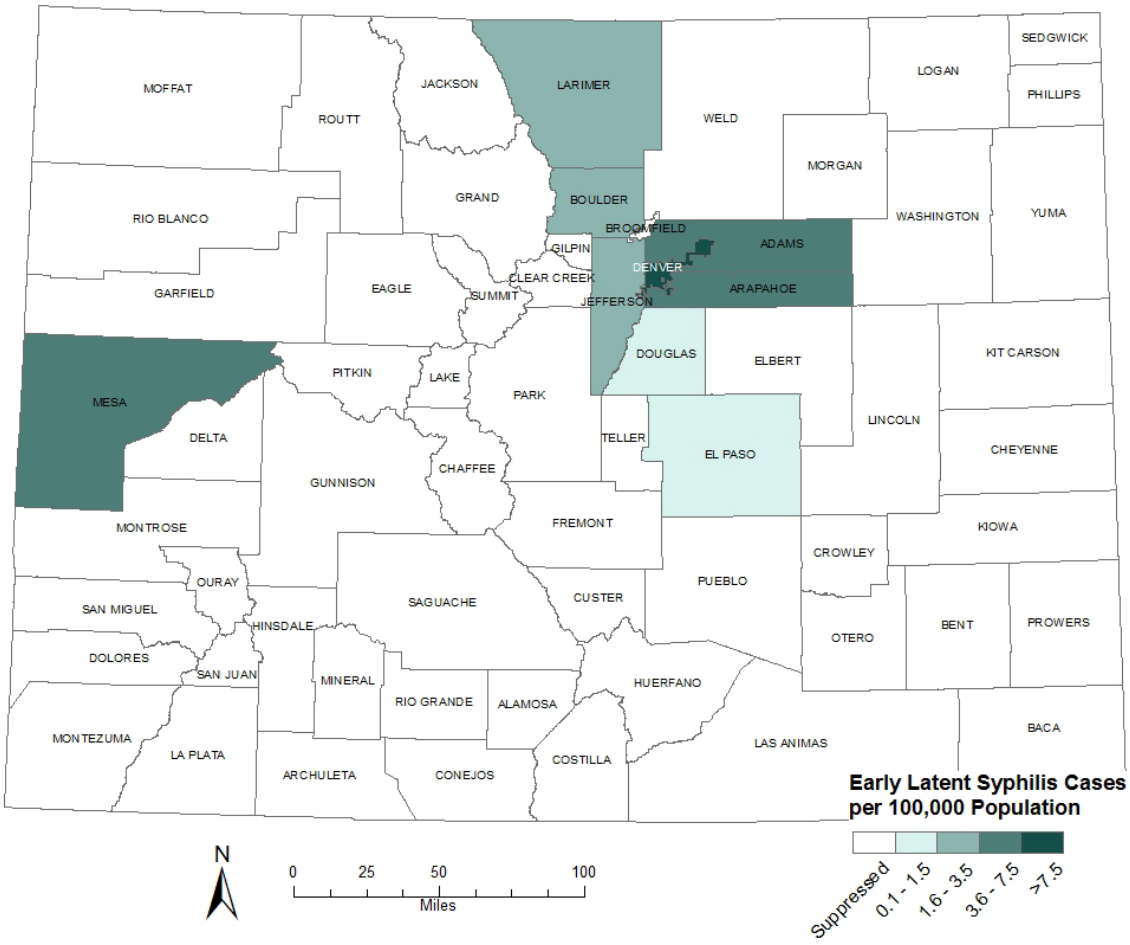
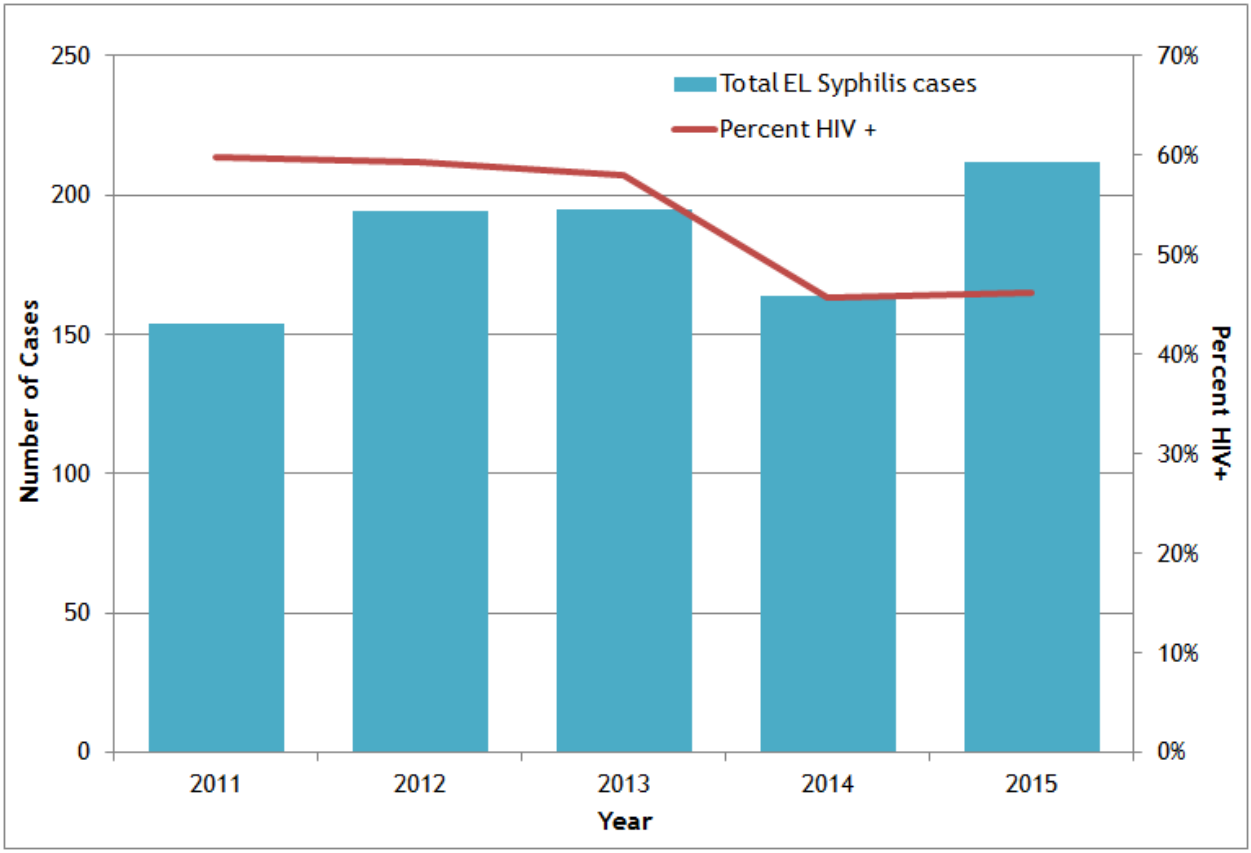


Figure 26 shows the rate of early latent syphilis and HIV co-infections for 2011-2015. The co-infection rate has ranged from 59.7 percent in 2011 to 45.7 percent in 2014. The five-year average for early latent syphilis and HIV co-infections is 53.6 percent.

Figure 26: Early Latent Syphilis Cases and Percent HIV+ by Year of Diagnosis, Colorado, 2011-2015



Data Tables

Table 1: Chlamydia, Gonorrhea and Early Syphilis Count and Incidence Rate with Ranking by County & Health Statistics Region (HSR), 2015

		Chlamydia				Gonorrhea				Primary & Secondary Syphilis				Early Latent Syphilis			
	2015 Popu-lation†	Cases	Rate	County Rank*	HSR Rank ^	Cases	Rate	County Rank*	HSR Rank ^	Cases	Rate	County Rank*	HSR Rank ^	Cases	Rate	County Rank*	HSR Rank ^
Region 1:	72,041	197	273.5	---	13	14	19.4	---	17	0	0.0	---	19	1	1.4	---	9
Logan	22,110	56	253.3	27	---	5	22.6	27	---	0	0.0	20	---	1	4.5	5	---
Morgan	28,275	100	353.7	15	---	9	31.8	20	---	0	0.0	20	---	0	0.0	17	---
Phillips	4,329	11	254.1	26	---	0	0.0	47	---	0	0.0	20	---	0	0.0	17	---
Sedgwick	2,370	6	253.2	28	---	0	0.0	47	---	0	0.0	20	---	0	0.0	17	---
Washington	4,837	3	62.0	60	---	0	0.0	47	---	0	0.0	20	---	0	0.0	17	---
Yuma	10,120	21	207.5	37	---	0	0.0	47	---	0	0.0	20	---	0	0.0	17	---
Region 2: Larimer	332,839	1,102	331.1	17	11	85	25.5	26	14	9	2.7	10	6	5	1.5	13	8
Region 3: Douglas	322,022	531	164.9	43	19	59	18.3	30	18	2	0.6	19	17	3	0.9	15	12
Region 4: El Paso	677,026	2,877	424.9	10	7	714	105.5	6	4	21	3.1	9	5	9	1.3	14	10
Region 5:	40,340	51	126.4	---	21	9	22.3	---	16	0	0.0	---	19	2	5.0	---	3
Cheyenne	1,855	1	53.9	61	---	0	0.0	47	---	0	0.0	20	---	0	0.0	17	---
Elbert	24,691	32	129.6	52	---	8	32.4	19	---	0	0.0	20	---	1	4.1	6	---
Lincoln	8,245	10	121.3	53	---	0	0.0	47	---	0	0.0	20	---	0	0.0	17	---
Kit Carson	5,549	8	144.2	50	---	1	18.0	31	---	0	0.0	20	---	1	18.0	1	---
Region 6:	67,065	187	278.8	---	12	35	52.2	---	7	1	1.5	---	12	0	0.0	---	14
Baca	3,602	1	27.8	62	---	0	0.0	47	---	0	0.0	20	---	0	0.0	17	---
Bent	5,846	15	256.6	25	---	3	51.3	9	---	0	0.0	20	---	0	0.0	17	---
Crowley	5,537	8	144.5	48	---	2	36.1	15	---	0	0.0	20	---	0	0.0	17	---
Huerfano	6,477	17	262.5	23	---	3	46.3	11	---	0	0.0	20	---	0	0.0	17	---
Kiowa	1,386	2	144.3	49	---	0	0.0	47	---	0	0.0	20	---	0	0.0	17	---
Las Animas	14,035	45	320.6	18	---	2	14.3	35	---	1	7.1	4	---	0	0.0	17	---
Otero	18,290	75	410.1	11	---	24	131.2	3	---	0	0.0	20	---	0	0.0	17	---
Prowers	11,892	24	201.8	39	---	1	8.4	42	---	0	0.0	20	---	0	0.0	17	---
Region 7: Pueblo	163,343	888	543.6	4	3	290	177.5	2	2	2	1.2	17	14	0	0.0	17	14
Region 8:	46,074	167	362.5	---	9	19	41.2	---	8	2	4.3	---	3	0	0.0	---	14
Alamosa	16,010	81	505.9	5	---	15	93.7	7	---	0	0.0	20	---	0	0.0	17	---
Conejos	8,052	21	260.8	24	---	1	12.4	38	---	0	0.0	20	---	0	0.0	17	---

		Chlamydia				Gonorrhea				Primary & Secondary Syphilis				Early Latent Syphilis			
	2015 Popu-lation†	Cases	Rate	County Rank*	HSR Rank ^	Cases	Rate	County Rank*	HSR Rank ^	Cases	Rate	County Rank*	HSR Rank ^	Cases	Rate	County Rank*	HSR Rank ^
Costilla	3,567	8	224.3	35	---	0	0.0	47	---	0	0.0	20	---	0	0.0	17	---
Mineral	712	2	280.9	21	---	0	0.0	47	---	0	0.0	20	---	0	0.0	17	---
Rio Grande	11,478	49	426.9	9	---	3	26.1	25	---	2	17.4	1	---	0	0.0	17	---
Saguache	6,255	6	95.9	56	---	0	0.0	47	---	0	0.0	20	---	0	0.0	17	---
Region 9:	96,110	433	450.5	---	5	55	57.2	---	6	2	2.1	---	10	0	0.0	---	14
Archuleta	12,379	37	298.9	20	---	1	8.1	44	---	0	0.0	20	---	0	0.0	17	---
Dolores	1,961	2	102.0	54	---	0	0.0	47	---	0	0.0	20	---	0	0.0	17	---
La Plata	54,908	239	435.3	8	---	22	40.1	13	---	1	1.8	15	---	0	0.0	17	---
Montezuma	26,141	155	592.9	2	---	32	122.4	4	---	1	3.8	8	---	0	0.0	17	---
San Juan	721	0	0.0	63	---	0	0.0	47	---	0	0.0	20	---	0	0.0	17	---
Region 10:	100,283	205	204.4	---	16	7	7.0	---	21	1	1.0	---	15	0	0.0	---	14
Delta	29,947	59	197.0	40	---	2	6.7	45	---	0	0.0	20	---	0	0.0	17	---
Gunnison	16,139	36	223.1	36	---	1	6.2	46	---	0	0.0	20	---	0	0.0	17	---
Hinsdale	781	0	0.0	63	---	0	0.0	47	---	0	0.0	20	---	0	0.0	17	---
Montrose	40,908	92	224.9	34	---	4	9.8	41	---	0	0.0	20	---	0	0.0	17	---
Ouray	4,654	4	85.9	58	---	0	0.0	47	---	0	0.0	20	---	0	0.0	17	---
San Miguel	7,854	14	178.3	41	---	0	0.0	47	---	1	12.7	3	---	0	0.0	17	---
Region 11:	44,848	96	214.1	---	15	8	17.8	---	19	1	2.2	---	9	0	0.0	---	14
Jackson	1,360	2	147.1	47	---	0	0.0	47	---	0	0.0	20	---	0	0.0	17	---
Moffat	12,925	31	239.8	29	---	5	38.7	14	---	0	0.0	20	---	0	0.0	17	---
Rio Blanco	6,458	6	92.9	57	---	1	15.5	34	---	0	0.0	20	---	0	0.0	17	---
Routt	24,105	57	236.5	30	---	2	8.3	43	---	1	4.1	7	---	0	0.0	17	---
Region 12:	174,424	474	271.8	---	14	44	25.2	---	15	1	0.6	---	17	2	1.1	---	11
Eagle	53,581	121	225.8	32	---	9	16.8	33	---	1	1.9	14	---	0	0.0	17	---
Garfield	58,080	184	316.8	19	---	18	31.0	21	---	0	0.0	20	---	1	1.7	12	---
Grand	14,619	19	130.0	51	---	3	20.5	29	---	0	0.0	20	---	0	0.0	17	---
Pitkin	17,846	42	235.3	31	---	5	28.0	23	---	0	0.0	20	---	0	0.0	17	---
Summit	30,298	108	356.5	14	---	9	29.7	22	---	0	0.0	20	---	1	3.3	8	---
Region 13:	77,099	157	203.6	---	17	24	31.1	---	12	1	1.3	---	13	0	0.0	---	14
Chaffee	18,598	28	150.6	45	---	2	10.8	40	---	0	0.0	20	---	0	0.0	17	---
Custer	4,460	3	67.3	59	---	0	0.0	47	---	0	0.0	20	---	0	0.0	17	---
Fremont	46,561	105	225.5	33	---	21	45.1	12	---	1	2.1	13	---	0	0.0	17	---
Lake	7,480	21	280.7	22	---	1	13.4	36	---	0	0.0	20	---	0	0.0	17	---
Region 14: Adams	490,832	2,179	443.9	7	6	348	70.9	8	5	21	4.3	6	3	20	4.1	6	5
Region 15: Arapahoe	630,564	3,682	583.9	3	2	674	106.9	5	3	39	6.2	5	2	32	5.1	3	2

		Chlamydia				Gonorrhea				Primary & Secondary Syphilis				Early Latent Syphilis			
	2015 Popu-lation†	Cases	Rate	County Rank*	HSR Rank ^	Cases	Rate	County Rank*	HSR Rank ^	Cases	Rate	County Rank*	HSR Rank ^	Cases	Rate	County Rank*	HSR Rank ^
Region 16:	383,960	1,388	361.5	---	10	136	35.4	---	9	3	0.8	---	16	12	3.1	---	6
Boulder	319,173	1,168	365.9	13	---	104	32.6	18	---	3	0.9	18	---	10	3.1	9	---
Broomfield	64,787	220	339.6	16	---	32	49.4	10	---	0	0.0	20	---	2	3.1	9	---
Region 17:	55,276	76	137.5	---	20	8	14.5	---	20	0	0.0	---	19	0	0.0	---	14
Clear Creek	9,335	16	171.4	42	---	2	21.4	28	---	0	0.0	20	---	0	0.0	17	---
Gilpin	5,823	9	154.6	44	---	1	17.2	32	---	0	0.0	20	---	0	0.0	17	---
Park	16,660	16	96.0	55	---	2	12.0	39	---	0	0.0	20	---	0	0.0	17	---
Teller	23,458	35	149.2	46	---	3	12.8	37	---	0	0.0	20	---	0	0.0	17	---
Region 18: Weld	284,878	1,043	366.1	12	8	76	26.7	24	13	5	1.8	15	11	2	0.7	16	13
Region 19: Mesa	149,249	680	455.6	6	4	50	33.5	16	10	4	2.7	10	6	7	4.7	4	4
Region 20: Denver	683,097	6,106	893.9	1	1	1,526	223.4	1	1	117	17.1	2	1	105	15.4	2	1
Region 21: Jefferson	565,229	1,151	203.6	38	18	186	32.9	17	11	13	2.3	12	8	12	2.1	11	7
Unknown	---	187	---	---	---	20	---	---	---	0	---	---	---	0	---	---	---
STATEWIDE TOTAL	5,456,599	23,857	437.2	---	---	4,387	80.4	---	---	245	4.5	---	---	212	3.9	---	---

*Rate per 100,000 population

§Counties ranked by STI incidence rate per 100,000 population

^Health Statistics Regions ranked by STI incidence rate per 100,000 population

†2015 population estimate from the Colorado State Demography Office (SDO)

All STI surveillance data reported to the Colorado Department of Public Health and Environment for the year of 2015.

Table 2: Chlamydia, Gonorrhea and Early Syphilis Cases Diagnosed by Demographic Characteristics, 2015

		Chlamydia			Gonorrhea			Primary & Secondary Syphilis			Early Latent Syphilis		
	2015 Population*	Cases	%	Rate†	Cases	%	Rate†	Cases	%	Rate†	Cases	%	Rate†
Total	5,456,599	23,857	100.0	437.2	4,387	100.0	80.4	245	100.0	4.5	212	100.0	3.9
Gender													
Male	2,729,667	7,706	32.3	282.3	2,555	58.2	93.6	239	97.6	8.8	201	94.8	7.4
Female	2,726,932	16,151	67.7	592.3	1,832	41.8	67.2	6	2.4	0.2	11	5.2	0.4
Race/Ethnicity													
Hispanic (all races)	1,215,175	5,954	25.0	490.0	1,128	25.7	92.8	66	26.9	5.4	65	30.7	5.3
NH White	3,762,579	5,838	24.5	155.2	1,329	30.3	35.3	141	57.6	3.7	108	50.9	2.9
NH Black	228,772	1,844	7.7	806.0	715	16.3	312.5	27	11.0	11.8	30	14.2	13.1
NH AI/AN	52,446	191	0.8	364.2	73	1.7	139.2	2	0.8	3.8	4	1.9	7.6
NH Asian/PI	196,618	230	1.0	117.0	35	0.8	17.8	2	0.8	1.0	2	0.9	1.0
NH Other	---	291	1.2	---	58	1.3	---	0	0.0	---	0	0.0	---
Unknown	---	9,509	39.9	---	1,049	23.9	---	7	2.9	---	3	1.4	---
Age Group													
0 to 9	700,530	7	0.0	1.0	1	0.0	0.1	0	0.0	0.0	0	0.0	0.0
10 to 14	369,643	131	0.5	35.4	22	0.5	6.0	0	0.0	0.0	0	0.0	0.0
15 to 19	363,103	5,704	23.9	1570.9	683	15.6	188.1	7	2.9	1.9	8	3.8	2.2
20 to 24	381,886	9,060	38.0	2372.4	1,287	29.3	337.0	36	14.7	9.4	38	17.9	10.0
25 to 29	357,564	4,618	19.4	1291.5	953	21.7	266.5	46	18.8	12.9	42	19.8	11.7
30 to 34	399,421	2,144	9.0	536.8	596	13.6	149.2	40	16.3	10.0	30	14.2	7.5
35 to 39	378,628	1,016	4.3	268.3	349	8.0	92.2	32	13.1	8.5	19	9.0	5.0
40 to 44	366,382	541	2.3	147.7	214	4.9	58.4	29	11.8	7.9	21	9.9	5.7
45 to 54	732,015	482	2.0	65.8	204	4.7	27.9	39	15.9	5.3	41	19.3	5.6
55 to 64	695,227	121	0.5	17.4	63	1.4	9.1	14	5.7	2.0	12	5.7	1.7
65+	712,200	29	0.1	4.1	14	0.3	2.0	2	0.8	0.3	1	0.5	0.1
Unknown	---	4	0.0	---	1	0.0	---	0	0.0	---	0	0.0	---

†2015 SDO Population Estimate *Rate per 100,000 population

Table 3: Chlamydia Demographic Characteristics by Gender, 2015

	Chlamydia											
	Male				Female				Total			
	2015 Population^	Cases	%	Rate†	2015 Population^	Cases	%	Rate†	2015 Population^	Cases	%	Rate†
Total	2,729,667	7,706	100.0	282.3	2,726,932	16,151	100.0	592.3	5,456,599	23,857	100.0	437.2
Race/Ethnicity												
Hispanic (all races)	611,522	1,634	21.2	267.2	603,653	4,320	26.7	715.6	1,215,175	5,954	25.0	490.0
NH White	1,881,298	2,246	29.1	119.4	1,881,281	3,592	22.2	190.9	3,762,579	5,838	24.5	155.2
NH Black	120,341	789	10.2	655.6	108,431	1,055	6.5	973.0	228,772	1,844	7.7	806.0
NH AI/AN	26,116	50	0.6	191.5	26,330	141	0.9	535.5	52,446	191	0.8	364.2
NH Asian/PI	89,721	58	0.8	64.6	106,897	172	1.1	160.9	196,618	230	1.0	117.0
NH Other	---	84	1.1	---	---	207	1.3	---	---	291	1.2	---
Unknown	---	2,845	36.9	---	---	6,664	41.3	---	---	9,509	39.9	---
Age Group												
0 to 9	358,335	1	0.0	0.3	342,195	6	0.0	1.8	700,530	7	0.0	1.0
10 to 14	187,651	17	0.2	9.1	181,992	114	0.7	62.6	369,643	131	0.5	35.4
15 to 19	185,934	1,104	14.3	593.8	177,169	4,600	28.5	2596.4	363,103	5,704	23.9	1570.9
20 to 24	200,729	2,702	35.1	1346.1	181,157	6,358	39.4	3509.7	381,886	9,060	38.0	2372.4
25 to 29	182,104	1,829	23.7	1004.4	175,460	2,789	17.3	1589.5	357,564	4,618	19.4	1291.5
30 to 34	203,559	922	12.0	452.9	195,862	1,222	7.6	623.9	399,421	2,144	9.0	536.8
35 to 39	193,350	471	6.1	243.6	185,278	545	3.4	294.2	378,628	1,016	4.3	268.3
40 to 44	187,974	276	3.6	146.8	178,408	265	1.6	148.5	366,382	541	2.3	147.7
45 to 54	366,175	286	3.7	78.1	365,840	196	1.2	53.6	732,015	482	2.0	65.8
55 to 64	339,967	76	1.0	22.4	355,260	45	0.3	12.7	695,227	121	0.5	17.4
65+	323,889	22	0.3	6.8	388,311	7	0.0	1.8	712,200	29	0.1	4.1
Unknown	---	0	0.0	---	---	4	0.0	---	---	4	0.0	---

†2015 SDO Population Estimate *Rate per 100,000 population

Table 4: Gonorrhea Demographic Characteristics by Gender, 2015

	Gonorrhea											
	Male				Female				Total			
	2015 Population ^	Cases	%	Rate†	2015 Population ^	Cases	%	Rate†	2015 Population ^	Cases	%	Rate†
Total	2,729,667	2,555	100.0	93.6	2,726,932	1,832	100.0	67.2	5,456,599	4,387	100.0	80.4
Race/Ethnicity												
Hispanic (all races)	611,522	591	23.1	96.6	603,653	537	29.3	89.0	1,215,175	1,128	25.7	92.8
NH White	1,881,298	891	34.9	47.4	1,881,281	438	23.9	23.3	3,762,579	1,329	30.3	35.3
NH Black	120,341	421	16.5	349.8	108,431	294	16.0	271.1	228,772	715	16.3	312.5
NH AI/AN	26,116	42	1.6	160.8	26,330	31	1.7	117.7	52,446	73	1.7	139.2
NH Asian/PI	89,721	22	0.9	24.5	106,897	13	0.7	12.2	196,618	35	0.8	17.8
NH Other	---	29	1.1	---	---	29	1.6	---	0	58	1.3	---
Unknown	---	559	21.9	---	---	490	26.7	---	---	1,049	23.9	---
Age Group												
0 to 9	358,335	0	0.0	0.0	342,195	1	0.1	0.3	700,530	1	0.0	0.1
10 to 14	187,651	3	0.1	1.6	181,992	19	1.0	10.4	369,643	22	0.5	6.0
15 to 19	185,934	250	9.8	134.5	177,169	433	23.6	244.4	363,103	683	15.6	188.1
20 to 24	200,729	694	27.2	345.7	181,157	593	32.4	327.3	381,886	1,287	29.3	337.0
25 to 29	182,104	588	23.0	322.9	175,460	365	19.9	208.0	357,564	953	21.7	266.5
30 to 34	203,559	375	14.7	184.2	195,862	221	12.1	112.8	399,421	596	13.6	149.2
35 to 39	193,350	256	10.0	132.4	185,278	93	5.1	50.2	378,628	349	8.0	92.2
40 to 44	187,974	154	6.0	81.9	178,408	60	3.3	33.6	366,382	214	4.9	58.4
45 to 54	366,175	168	6.6	45.9	365,840	36	2.0	9.8	732,015	204	4.7	27.9
55 to 64	339,967	55	2.2	16.2	355,260	8	0.4	2.3	695,227	63	1.4	9.1
65+	323,889	11	0.4	3.4	388,311	3	0.2	0.8	712,200	14	0.3	2.0
Unknown	---	1	0.0	---	---	0	0.0	---	---	1	0.0	---

†2015 SDO Population Estimate *Rate per 100,000 population

Table 5: Primary & Secondary Syphilis Demographic Characteristics by Gender, 2015

	Primary and Secondary Syphilis											
	Male				Female				Total			
	2015 Population ^	Cases	%	Rate†	2015 Population ^	Cases	%	Rate†	2015 Population ^	Cases	%	Rate†
Total	2,729,667	239	100.0	8.8	2,726,932	6	100.0	0.2	5,456,599	245	100.0	4.5
Race/Ethnicity												
Hispanic (all races)	611,522	66	27.6	10.8	603,653	0	0.0	0.0	1,215,175	66	26.9	5.4
NH White	1,881,298	137	57.3	7.3	1,881,281	4	66.7	0.2	3,762,579	141	57.6	3.7
NH Black	120,341	25	10.5	20.8	108,431	2	33.3	1.8	228,772	27	11.0	11.8
NH AI/AN	26,116	2	0.8	7.7	26,330	0	0.0	0.0	52,446	2	0.8	3.8
NH Asian/PI	89,721	2	0.8	2.2	106,897	0	0.0	0.0	196,618	2	0.8	1.0
NH Other	---	0	0.0	---	---	0	0.0	---	0	0	0.0	---
Unknown	---	7	2.9	---	---	0	0.0	---	---	7	2.9	---
Age Group												
0 to 9	358,335	0	0.0	0.0	342,195	0	0.0	0.0	700,530	0	0.0	0.0
10 to 14	187,651	0	0.0	0.0	181,992	0	0.0	0.0	369,643	0	0.0	0.0
15 to 19	185,934	6	2.5	3.2	177,169	1	16.7	0.6	363,103	7	2.9	1.9
20 to 24	200,729	35	14.6	17.4	181,157	1	16.7	0.6	381,886	36	14.7	9.4
25 to 29	182,104	45	18.8	24.7	175,460	1	16.7	0.6	357,564	46	18.8	12.9
30 to 34	203,559	40	16.7	19.7	195,862	0	0.0	0.0	399,421	40	16.3	10.0
35 to 39	193,350	30	12.6	15.5	185,278	2	33.3	1.1	378,628	32	13.1	8.5
40 to 44	187,974	29	12.1	15.4	178,408	0	0.0	0.0	366,382	29	11.8	7.9
45 to 54	366,175	38	15.9	10.4	365,840	1	16.7	0.3	732,015	39	15.9	5.3
55 to 64	339,967	14	5.9	4.1	355,260	0	0.0	0.0	695,227	14	5.7	2.0
65+	323,889	2	0.8	0.6	388,311	0	0.0	0.0	712,200	2	0.8	0.3
Unknown	---	0	0.0	---	---	0	0.0	---	---	0	0.0	---

†2015 SDO Population Estimate *Rate per 100,000 population

Table 6: Early Latent Syphilis Demographic Characteristics by Gender, 2015

	Early Latent Syphilis											
	Male				Female				Total			
	2015 Population ^	Cases	%	Rate†	2015 Population ^	Cases	%	Rate†	2015 Population ^	Cases	%	Rate†
Total	2,729,667	201	100.0	7.4	2,726,932	11	100.0	0.4	5,456,599	212	100.0	3.9
Race/Ethnicity												
Hispanic (all races)	611,522	63	31.3	10.3	603,653	2	18.2	0.3	1,215,175	65	30.7	5.3
NH White	1,881,298	105	52.2	5.6	1,881,281	3	27.3	0.2	3,762,579	108	50.9	2.9
NH Black	120,341	24	11.9	19.9	108,431	6	54.5	5.5	228,772	30	14.2	13.1
NH AI/AN	26,116	4	2.0	15.3	26,330	0	0.0	0.0	52,446	4	1.9	7.6
NH Asian/PI	89,721	2	1.0	2.2	106,897	0	0.0	0.0	196,618	2	0.9	1.0
NH Other	---	0	0.0	---	---	0	0.0	---	0	0	0.0	---
Unknown	---	3	1.5	---	---	0	0.0	---	---	3	1.4	---
Age Group												
0 to 9	358,335	0	0.0	0.0	342,195	0	0.0	0.0	700,530	0	0.0	0.0
10 to 14	187,651	0	0.0	0.0	181,992	0	0.0	0.0	369,643	0	0.0	0.0
15 to 19	185,934	7	3.5	3.8	177,169	1	9.1	0.6	363,103	8	3.8	2.2
20 to 24	200,729	33	16.4	16.4	181,157	5	45.5	2.8	381,886	38	17.9	10.0
25 to 29	182,104	39	19.4	21.4	175,460	3	27.3	1.7	357,564	42	19.8	11.7
30 to 34	203,559	30	14.9	14.7	195,862	0	0.0	0.0	399,421	30	14.2	7.5
35 to 39	193,350	19	9.5	9.8	185,278	0	0.0	0.0	378,628	19	9.0	5.0
40 to 44	187,974	21	10.4	11.2	178,408	0	0.0	0.0	366,382	21	9.9	5.7
45 to 54	366,175	40	19.9	10.9	365,840	1	9.1	0.3	732,015	41	19.3	5.6
55 to 64	339,967	11	5.5	3.2	355,260	1	9.1	0.3	695,227	12	5.7	1.7
65+	323,889	1	0.5	0.3	388,311	0	0.0	0.0	712,200	1	0.5	0.1
Unknown	---	0	0.0	---	---	0	0.0	---	---	0	0.0	---

†2015 SDO Population Estimate *Rate per 100,000 population