

GONORRHEA IN NEVADA, 2003-2012

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Edition 1.0

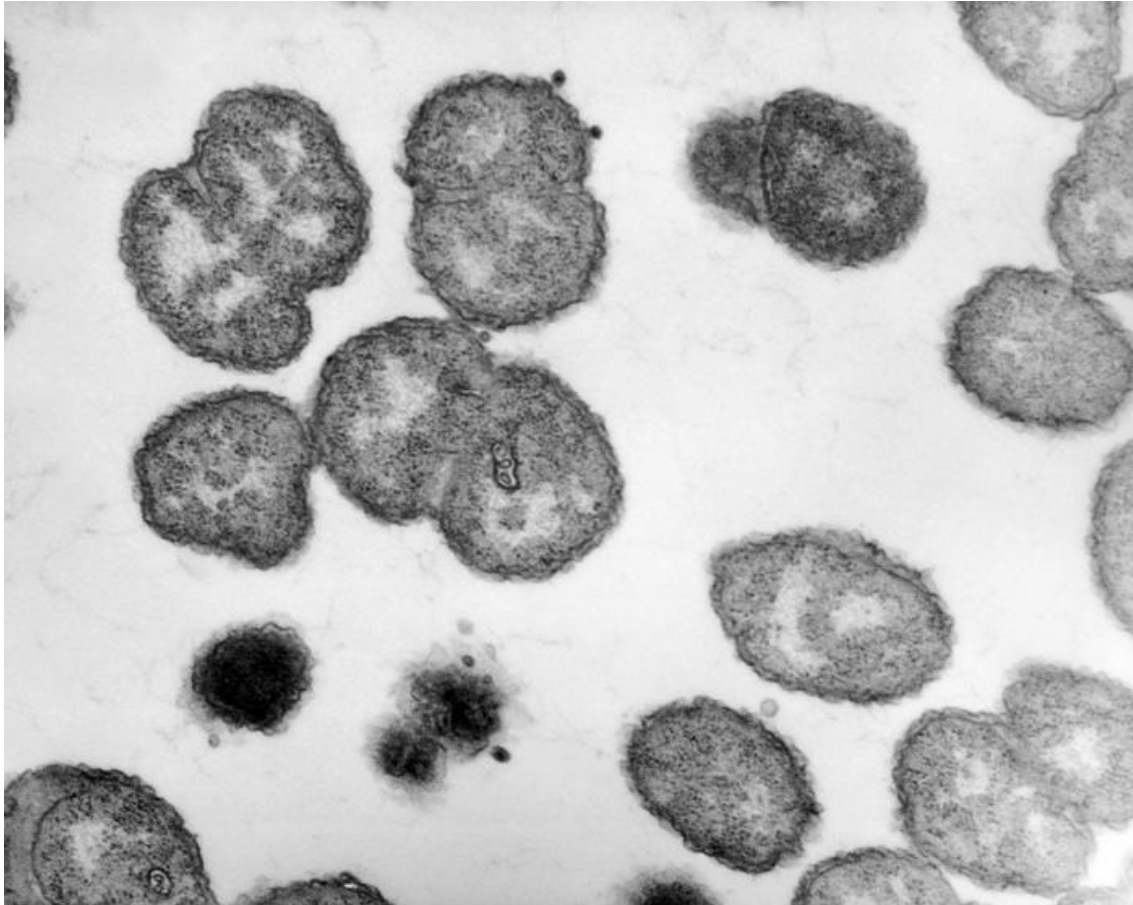


Photo: Centers for Disease Control and Prevention, VD/SCSD



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Purpose

The purpose of this report is to provide a general overview of the incidence and recent trends of gonorrhea among Nevada residents. The report also includes Healthy People 2010 objectives, Healthy People 2020 objectives, and Nevada data collected from cases of *Neisseria gonorrhoeae* from 2003 to 2012. Gonococcal infection is listed as one of Nevada's reportable diseases pursuant to [NRS 441A](#) (1). *Neisseria gonorrhoeae* reporting is further regulated by [NAC 441A.540](#) (2).

Gonorrhea

Gonorrhea, also known as gonococcal infection, is a sexually transmitted infection (STI) caused by the bacteria *Neisseria gonorrhoeae*. It is the second most commonly reported notifiable disease in the United States, and an estimated 820,000 persons become infected each year. Gonorrhea is most common among young people with 570,000 cases estimated among persons between 15 and 24 years of age each year. Because gonorrhea infections are often asymptomatic, the Centers for Disease Control and Prevention (CDC) estimates less than half of the infections are detected and reported (3).

Gonorrhea can grow in the reproductive tract in women and in the urethra, mouth, throat, eyes, and anus in both men and women. It is transmitted through sexual contact with the penis, vagina, mouth, or anus of an infected partner; ejaculation does not have to occur for gonorrhea to be transmitted or acquired. It can also be transmitted from mother to child during childbirth (3).

In many men, gonorrhea is asymptomatic. Symptoms, if they do appear, usually do so 1-14 days after exposure. Common symptoms of urethral infection in men include painful urination (dysuria) or a white, yellow, or green discharge from the penis. In some cases, epididymitis (inflammation of the tube at the back of the testicle that carries sperm) causes painful or swollen testicles. Most women are asymptomatic, and even when a woman exhibits symptoms, they are so mild they are often mistaken for a bladder or vaginal infection. Symptoms include dysuria, vaginal discharge, or vaginal bleeding between periods. Whether or not symptoms are present, women are at risk of developing serious complications from the infection. In men and women, rectal infections may be asymptomatic; if symptoms are present, patients may exhibit discharge, anal itching, soreness, bleeding, or painful bowel movements. Infection of the throat and mouth is also usually asymptomatic but may cause a sore throat (3).

Untreated gonorrhea can lead to pelvic inflammatory disease (PID) in women. Symptoms of PID can be very mild or severe, including abdominal pain and fever. PID can damage the fallopian tubes and cause infertility or increase the risk of ectopic pregnancy (pregnancy outside the womb). In men, untreated gonorrhea can lead to epididymitis, which in rare cases may lead to infertility. Untreated gonorrhea can also increase the chances of acquiring human immunodeficiency virus (HIV). Additionally, untreated gonorrhea can spread to the blood and cause disseminated gonococcal infection, which is characterized by arthritis, tenosynovitis, and/or dermatitis. This condition is potentially fatal (3).

Gonorrhea is diagnosed by collecting urine, urethral, endocervical, or vaginal specimens for laboratory testing. If a person has had oral or anal sex, pharyngeal and/or rectal swab specimens can be tested. Gonorrhea is curable, and dual therapy (use of two drugs) is the common method of treatment. It is recommended that a patient waits 7 more days after finishing medication before having sex again. Any sexually active person is at risk of being infected with gonorrhea. CDC recommends that anyone with symptoms of gonorrhea stop having sex and see a health care provider immediately. Anyone with a sexual partner (including oral or anal sex) who has been diagnosed with gonorrhea should see a health care provider. In addition, CDC recommends testing for gonorrhea every year for sexually active men who are gay or bisexual or for men who have sex with men. The risk of transmitting or receiving gonorrhea can be reduced through the use of latex condoms. However, the best way to prevent gonorrhea is to abstain from sex or be in a long-term mutually monogamous relationship with a partner who has been tested and is known to be uninfected (3).

Summary

From 2003 to 2012, the annual number of reported gonorrhea cases in Nevada ranged from a low of 1,739 cases in 2009 to a high of 3,099 cases in 2004. Over the ten years, a total of 23,419 cases were reported. The annual crude incidence rate of gonorrhea ranged from a low of 64.9 cases per 100,000 population in 2009 to a high of 132.8 cases per 100,000 population in 2004. There was a statistically significant increase in crude incidence rate between 2003 and 2004, followed by a steady decline to the low in 2009. The crude incidence rate then slowly increased from 2009 to 2012. The crude incidence rate from 2003 to 2012 was 91.5 cases per 100,000 population.

Healthy People 2010 objectives for gonorrhea were set for females aged 15 to 44 years and for the entire population. From 2003 to 2010, Nevada's crude incidence rates for gonorrhea were significantly higher than the Healthy People 2010 objectives, both for women aged 15 to 44 years (objective: 42 new cases per 100,000 population) and for the general population (objective: 19 new cases per 100,000 population) (4). During this time period, Nevada's annual crude incidence rate for females aged 15 to 44 years ranged from 145.9 to 278.3 cases per 100,000 population, and the annual crude incidence rate for the general population ranged from 64.9 to 132.8 cases per 100,000 population.

The gonorrhea objective for the general population was eliminated from the Healthy People 2020 objectives, the objective for females aged 15 to 44 years was increased to 251.9 new cases per 100,000 population, and an objective of 194.8 new cases per 100,000 population for males aged 15 to 44 year was created (5). Nevada's crude incidence rates for 2011 and 2012 for females aged 15 to 44 years (155.5 and 169.8 cases per 100,000 population, respectively) were significantly lower than the Healthy People 2020 objective. For males aged 15 to 44, Nevada's crude incidence rate was significantly lower than the Healthy People objective in 2011 but was not statistically significantly different from the objective in 2012 (177.1 and 194.1 cases per 100,000 population, respectively).

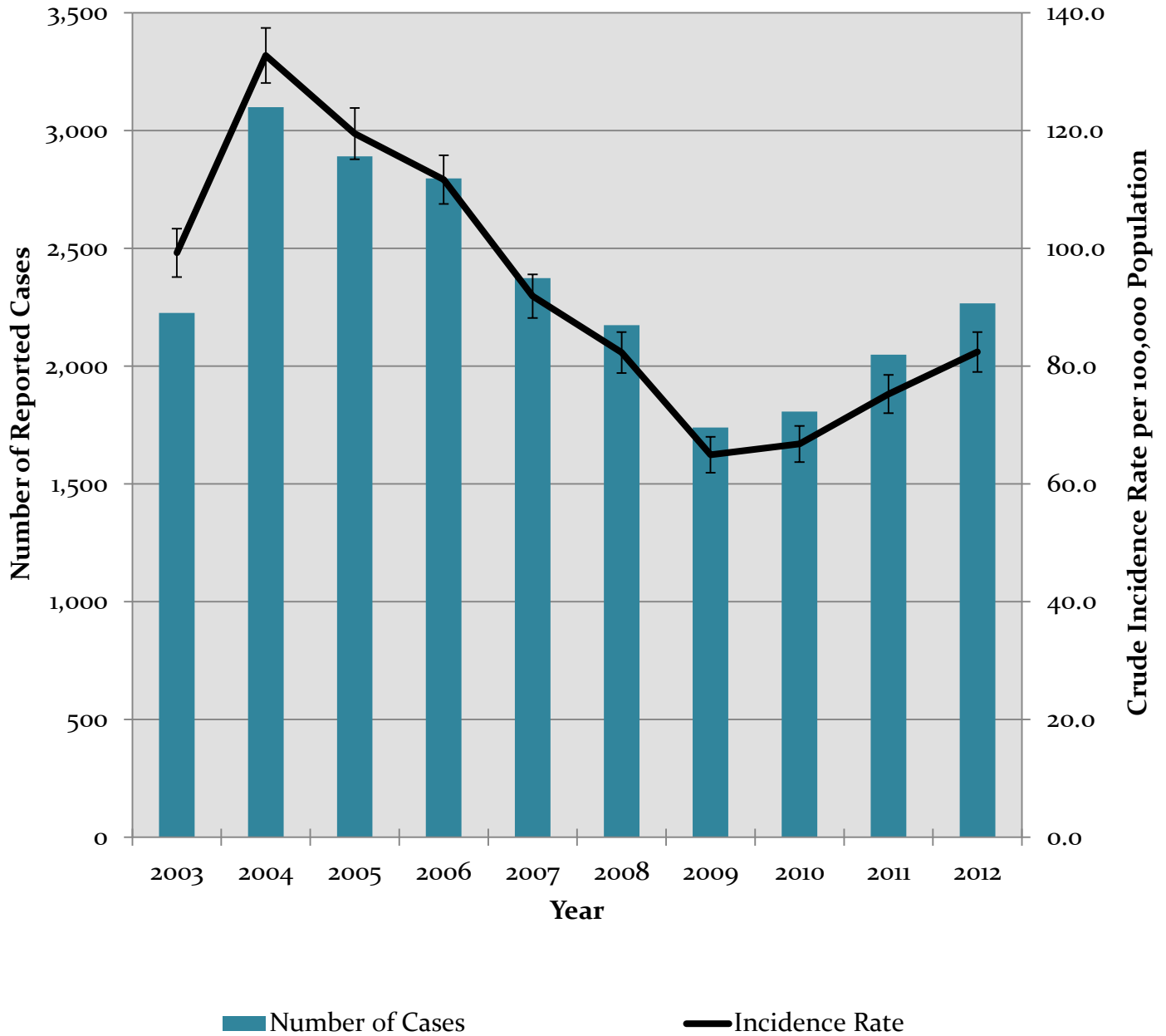
From 2003 to 2012, Southern Nevada Health District had significantly higher annual age-adjusted incidence rates (110.8 cases per 100,000 population over the ten years) compared to the other health districts and the annual age-adjusted incidence rate for the state (90.7 cases per 100,000 population over the ten years). With the exception of 2009, the Washoe County Health District had significantly higher annual age-adjusted incidence rates (53.2 cases per 100,000 population overall) compared to Carson City Health and Human Services and the rural and frontier counties (21.3 and 14.6 cases per 100,000 population overall, respectively). Washoe County Health District, Carson City Health and Human Services, and the rural and frontier counties all had significantly lower age-adjusted incidence rates compared to the overall state rate.

Between 2008 and 2012 (years for which monthly data is available), there was no discernable monthly or seasonal trend for reported gonorrhea cases. The number of reported cases ranged between 89 and 201 cases per month, depending on the year.

From 2003 to 2012, a significantly higher age-adjusted incidence rate (438.9 cases per 100,000 population) was observed among Blacks compared to residents of all other racial/ethnic groups; however, 6,899 cases (29% of the total cases reported) were of unknown race/ethnicity, which suggests that race- and ethnicity-specific incidence rates may not be reliable due to incomplete data. Therefore, this statement should be considered with caution until the data for future years is sufficient to support statistically sound conclusions without the potential of bias.

Gonorrhea is most common among young people (3); the highest number of reported cases and incidence rates were shown in the 15-24 year old age group. The overall age-specific incidence rate from 2003 to 2012 for the 15-24 year old age group (328.0 cases per 100,000 population) was significantly higher than all other age groups and was more than twice the incidence rate of the age group with the second highest reported cases, persons 25-39 years of age (156.2 cases per 100,000 population). Incidence rates for infants and children less than 5 years of age were not calculated due to low case counts.

Figure 1. Number of Reported Cases and Crude Incidence Rates of Gonorrhea in Nevada: 2003-2012



The crude incidence rate in Nevada from 2003 to 2012 was 91.5 cases per 100,000 population.

Figure 2. Crude Incidence Rates of Gonorrhea in Nevada, Females Aged 15-44 Years, Compared to Healthy People Objectives: 2003-2012

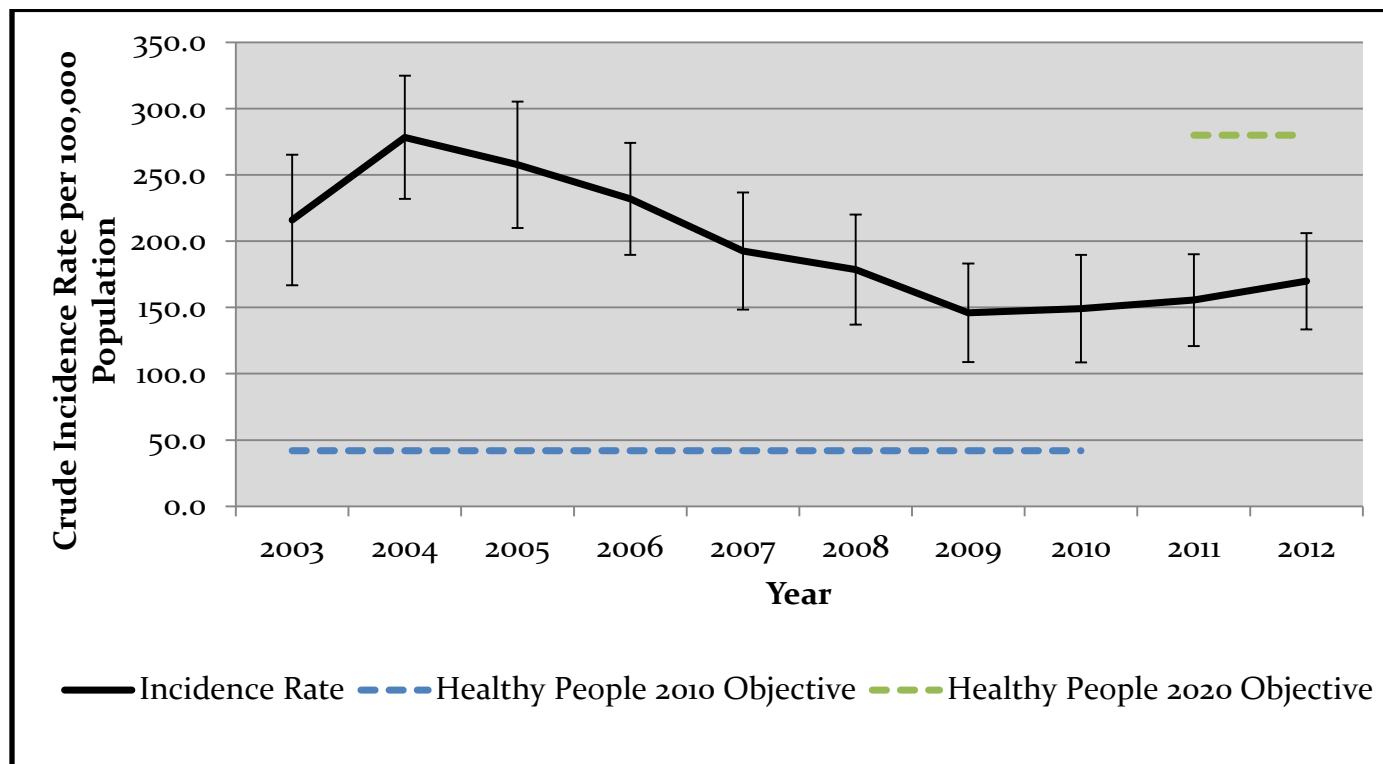


Figure 3. Crude Incidence Rates of Gonorrhea in Nevada Compared to Healthy People Objectives: 2003-2010

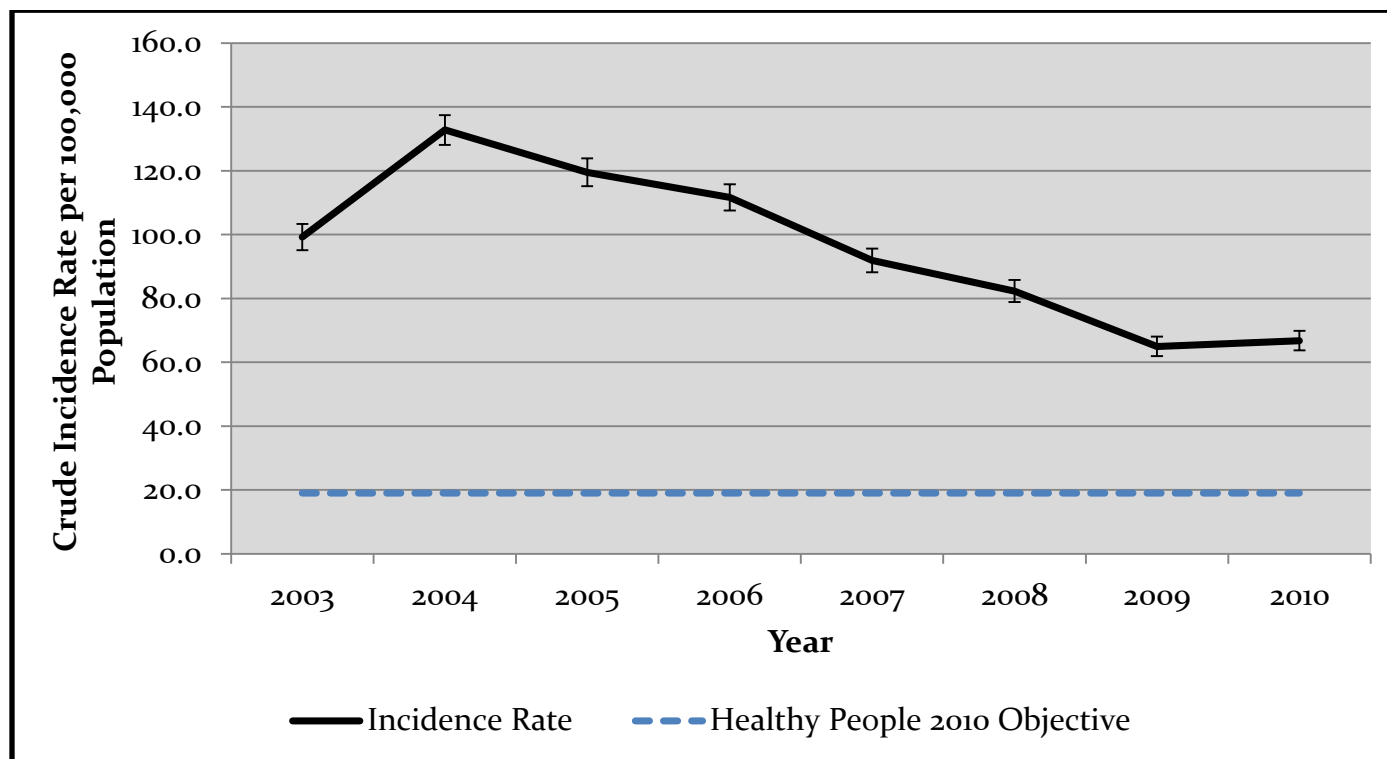


Figure 4. Age-Adjusted Incidence Rates of Gonorrhea in Nevada and Nevada Health Districts: 2003-2012

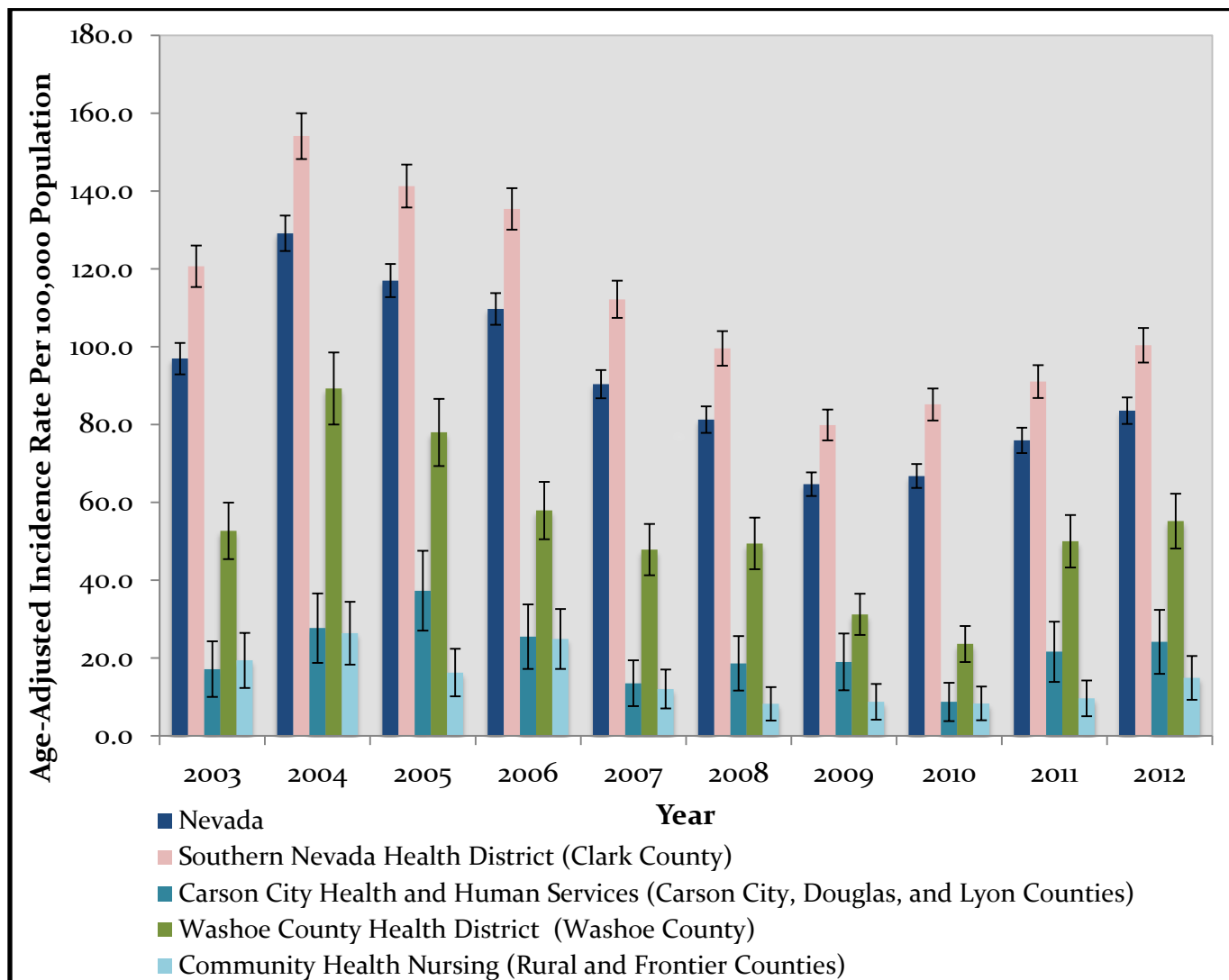
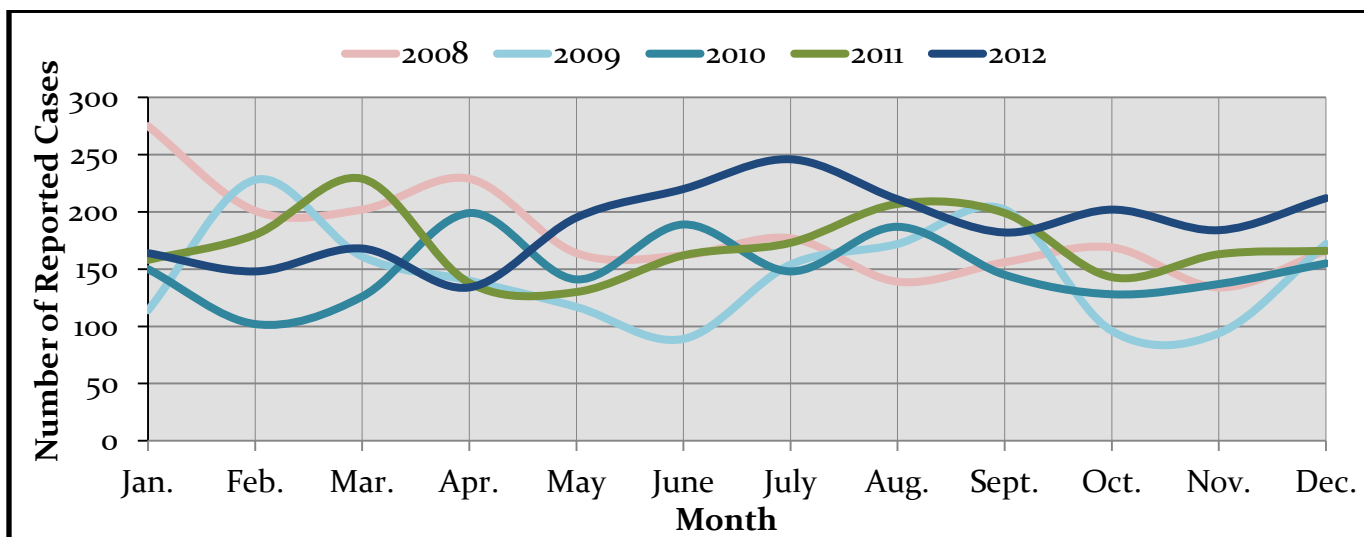
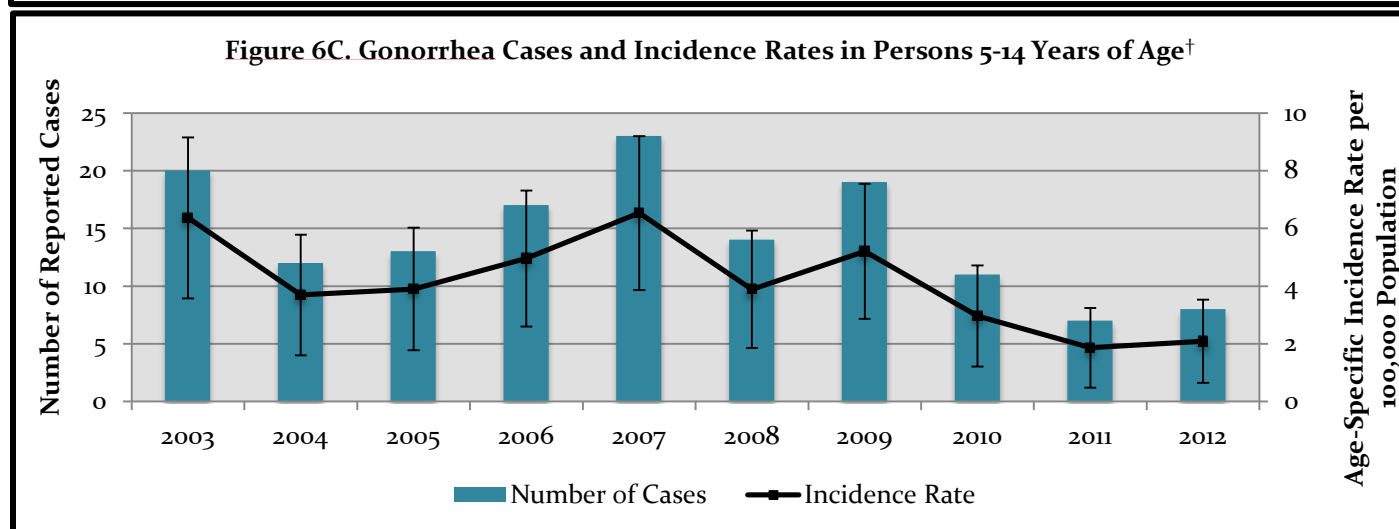
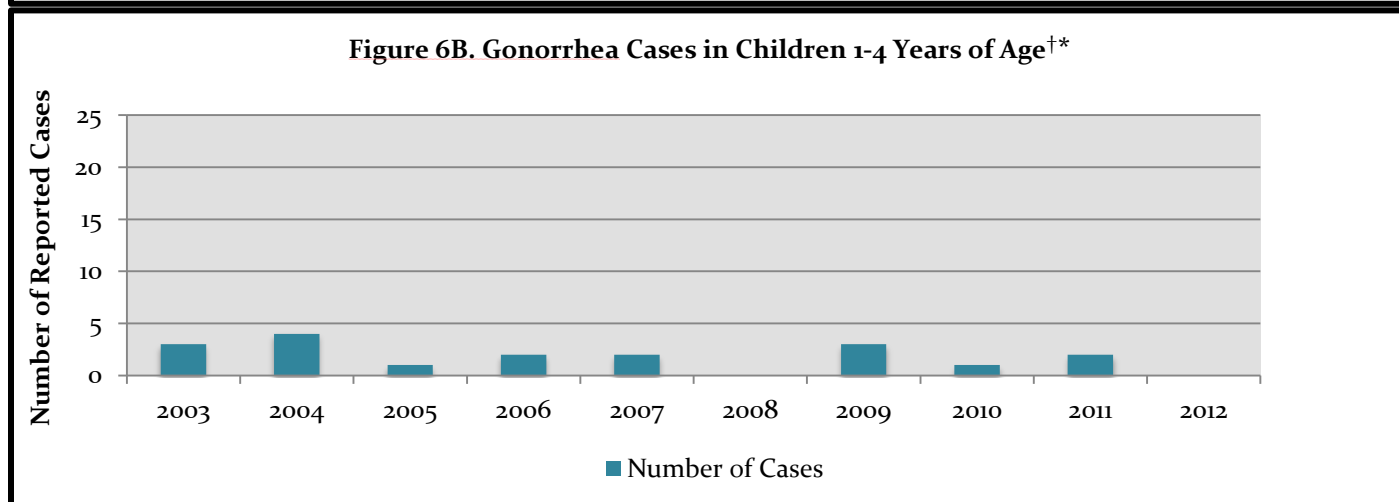
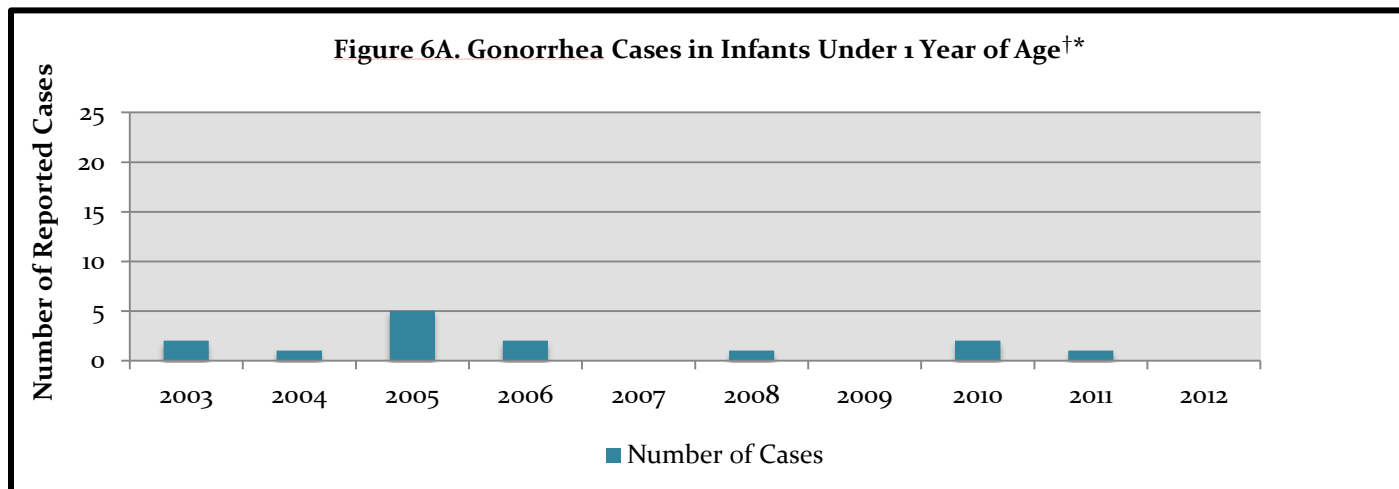


Figure 5. Number of Gonorrhea Cases Reported in Nevada by Month: 2008-2012



Figures 6A-G. Number of Reported Cases and Crude Incidence Rates of Gonorrhea in Nevada by Age Group: 2003-2012[†]



[†] Scale of figures 6A-6C and 6G differ from the scale of figures 6D-6F.

* Data not presented due to low case counts.

Figure 6D. Gonorrhea Cases and Incidence Rates in Persons 15-24 Years of Age[†]

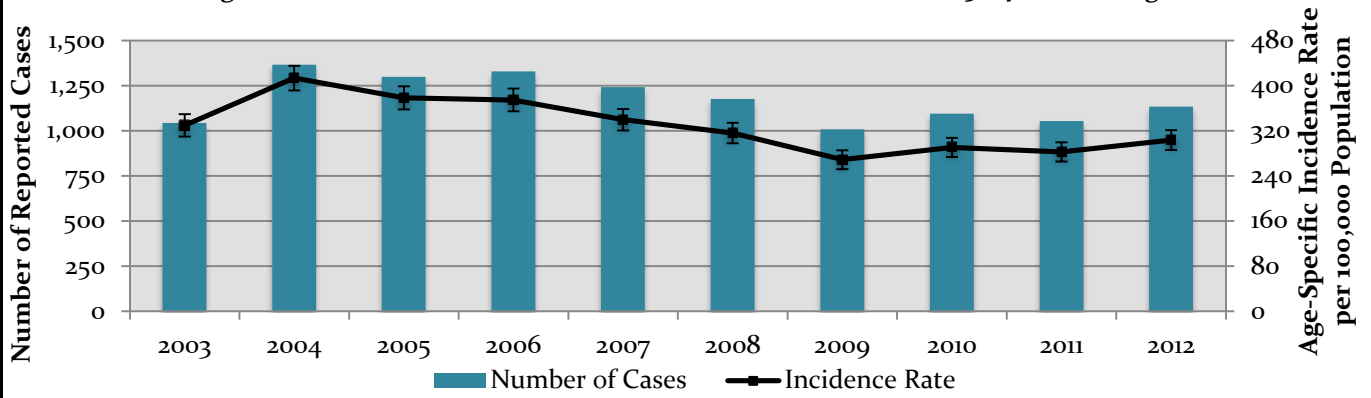


Figure 6E. Gonorrhea Cases and Incidence Rates in Persons 25-39 Years of Age[†]

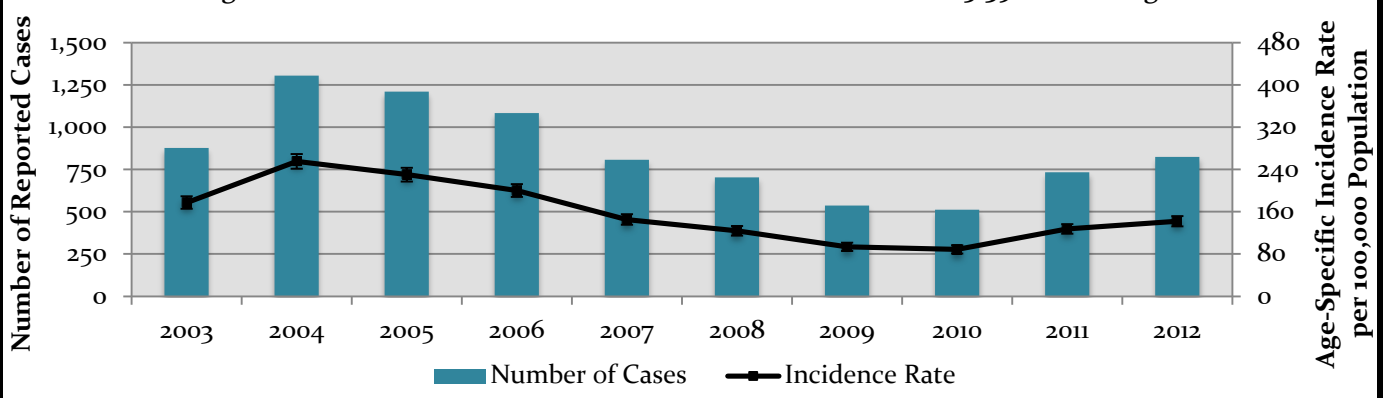


Figure 6F. Gonorrhea Cases and Incidence Rates in Persons 40-64 Years of Age[†]

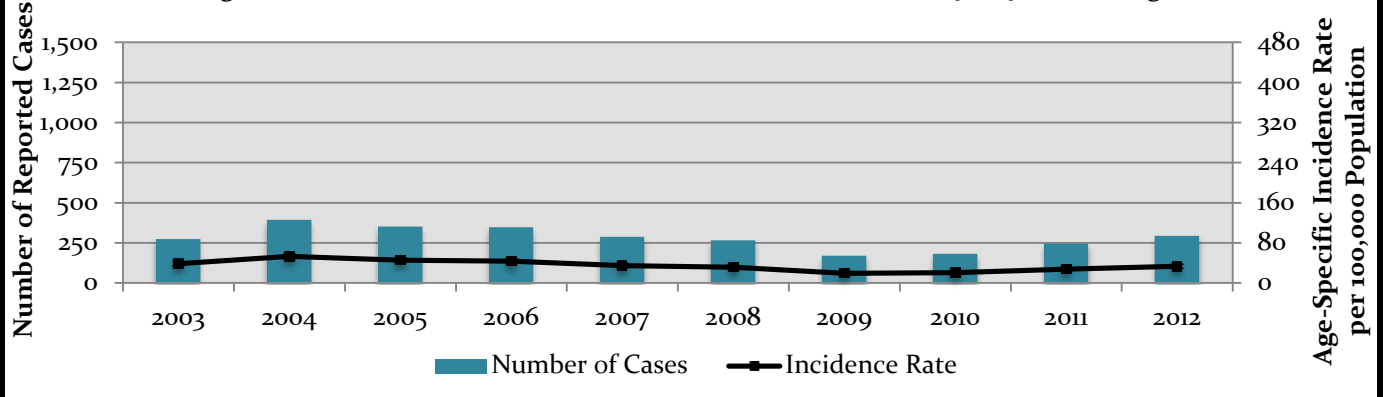
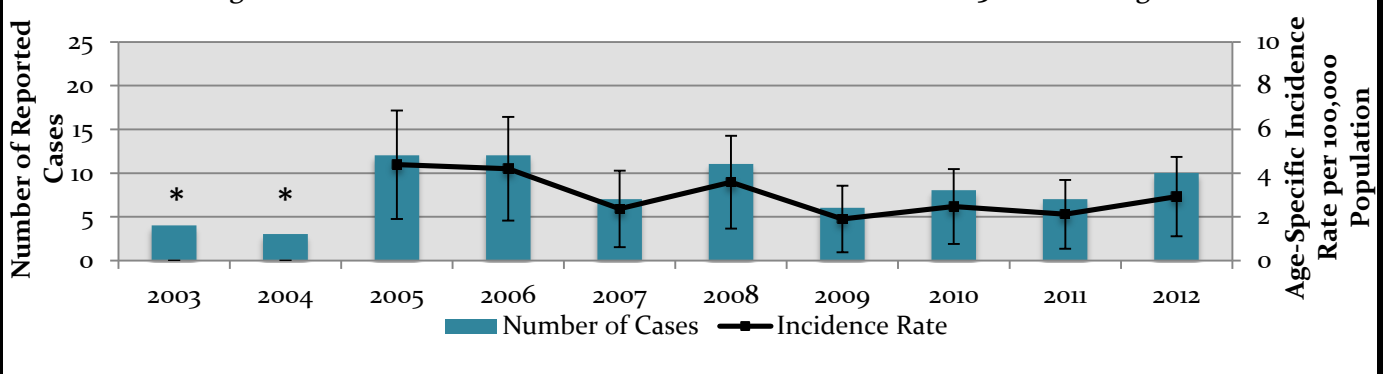


Figure 6G. Gonorrhea Cases and Incidence Rates in Persons 65+ Years of Age[†]



[†] Scale of figures 6A-6C and 6G differ from the scale of figures 6D-6F.

* Data not presented due to low case counts.

Technical Notes

All Nevada data from 2003 to 2012 came from reported cases of gonococcal infections among Nevada residents (6, 7). The CDC and the Council of State and Territorial Epidemiologists case definition of gonorrhea encompasses all cases classified as probable confirmed; all cases of gonorrhea used for this report follow this definition (8). Population estimates were obtained from Nevada State Demographer's Office (9). Age-adjusted rates per 100,000 population were calculated using the 2000 U.S. standard population. Cases with unknown ages were excluded from the age-adjusted rate calculations; 57 such cases had to be excluded. Due to the high number of cases of unknown race/ethnicity (6,899 cases), imputing the unknown cases to produce race/ethnicity-specific incidence rates would risk allowing potential selection bias to distort the measures, resulting in unreliable conclusions; therefore, racial/ethnic break-outs are not presented in this report. When used for rates, error bars represent 95% confidence intervals. The Keyfitz method was used to calculate confidence intervals of age-adjusted rates (10). Due to their inherent unreliability, rates were not calculated for case counts lower than five.

Sources

1. Nevada Revised Statute (NRS) 441A. <https://leg.state.nv.us/NRS/NRS-441A.html>
2. Nevada Administrative Code (NAC) 441A. <http://www.leg.state.nv.us/nac/NAC-441A.html#NAC441ASec540>
3. Centers for Disease Control and Prevention. Gonorrhea (2013). National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention. Retrieved 2014-01-02. <http://www.cdc.gov/std/gonorrhea/default.htm>
4. Centers for Disease Control and Prevention. (2012). Healthy People 2010. CDC Wonder Data 2010. Retrieved 2014-03-20. <http://wonder.cdc.gov/data2010/>
5. U.S. Department of Health and Human Services. (2013). Healthy People 2020. Retrieved 2014-03-20. <http://www.healthypeople.gov/2020/default.aspx>
6. NBS. NEDSS . All counties except Clark. 2005 to 2012.
7. NETSS. All counties from 2000 to 2004 and Clark. 2005 to 2012.
8. Centers For Disease Control and Prevention. (2014). Gonorrhea. National Notifiable Diseases Surveillance System. Retrieved 2014-03-06. <http://wwwn.cdc.gov/NNDSS/script/casedef.aspx?CondYrID=947&DatePub=1/1/2014>
9. Nevada State Demographer's Office. 2003-2012 ASRHO Estimates and Projections. Division of Public and Behavioral Health edition. Vintage 2012.
10. Keyfitz, Nathan. Human Biology. *Sampling variance of standardized mortality rates*. September 1966. 38(3): 309-17.

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