

# CAMPYLOBACTERIOSIS IN NEVADA, 2005-2014

January 2016  
Edition 1.0

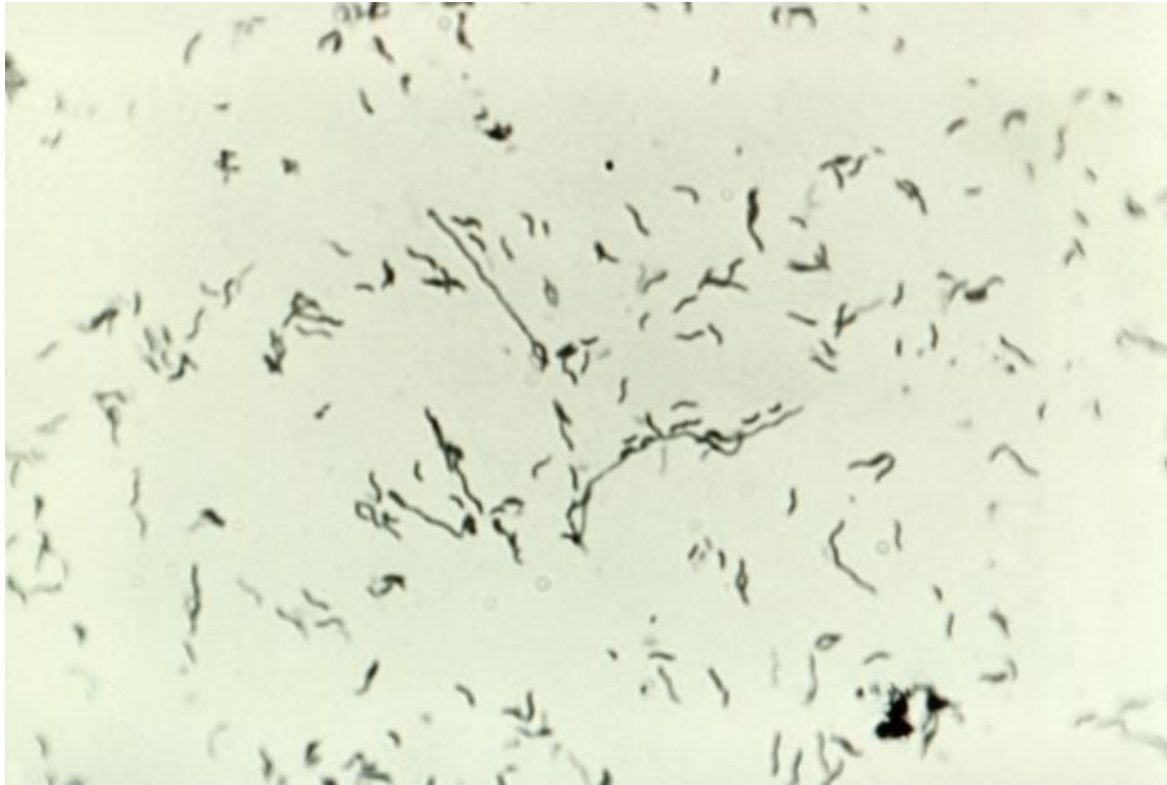


Photo: [Centers for Disease Control and Prevention](#)/ Robert Weaver, Ph.D.



**DEPARTMENT OF HEALTH AND HUMAN SERVICES**  
DIVISION OF PUBLIC AND BEHAVIORAL HEALTH  
Office of Public Health Informatics and Epidemiology

BRIAN SANDOVAL  
*Governor*

CODY L. PHINNEY, MPH  
*Administrator*

RICHARD WHITLEY, MS  
*Director*

TRACEY D. GREEN, MD  
*Chief Medical Officer*

## Purpose

The purpose of this report is to provide a general overview of the incidence and recent trends of campylobacteriosis among Nevada residents. The report also includes Healthy People 2010 objectives, Healthy People 2020 objectives, and Nevada data collected from cases of campylobacteriosis from 2005 to 2014. Campylobacteriosis is listed as one of Nevada's reportable diseases pursuant to [NRS 441A](#) (1). Campylobacteriosis reporting is further regulated by [NAC 441A.480](#) (2).

## Campylobacteriosis

Campylobacteriosis is an infection caused from a *Campylobacter* bacterium and is one of the most common diarrheal illnesses in the United States. It is estimated campylobacteriosis affects over 1.3 million people each year. The organism is most commonly found in the intestines and liver of chickens. It is easily transferred to raw meat during poultry slaughtering. Without proper sanitation or fully cooking the meat before consumption, one is at a high risk of contracting campylobacteriosis. The bacteria are also found in contaminated water and unpasteurized milk (3).

Symptoms of campylobacteriosis usually appear within 2 to 5 days of being exposed and most people recover within 2 to 5 days, though recovery sometimes takes up to 10 days. Patients may exhibit diarrhea, abdominal pain, cramping, and fever. Some patients also exhibit bloody diarrhea, nausea, and vomiting, while others do not show any signs or symptoms. Persons with compromised immune systems may develop a life threatening infection from campylobacteriosis because the organism crosses over into the blood stream. Death from campylobacteriosis is uncommon, but it has been estimated that approximately 76 deaths occur from the infection nationally per year (3).

*Campylobacter* infection is diagnosed when the bacterium is present in a stool sample. One of the biggest complications of campylobacteriosis is dehydration due to excessive diarrhea, but most people recover on their own, so treatment is not always necessary. However, individuals with severe disease or those with compromised immune systems are treated with antimicrobial therapy. In rare cases, campylobacteriosis triggers Guillain-Barré syndrome, a condition in which the person's immune system attacks the body's own nerves, resulting in paralysis. Centers for Disease Control and Prevention (CDC) estimates that 1 out of every 1,000 reported cases of campylobacteriosis leads to Guillain-Barré syndrome, and 40 percent of Guillain-Barré cases in the United States may be triggered by campylobacteriosis (3).

Prevention efforts for campylobacteriosis aim at cooking chicken to an internal temperature of 165°F, washing hands before and after handling raw chicken, using a separate cutting board for raw poultry, and thoroughly cleaning any surface or kitchen utensil that comes in contact with raw chicken with soap and hot water. One must also be conscious not to consume unpasteurized milk or untreated water. This advice is more applicable to international travelers in locations where sanitation and food regulations are not as strict as the United States (3).

## Summary

From 2005 to 2014, the annual number of reported campylobacteriosis cases in Nevada ranged from a low of 160 cases in 2005 and 2006 to a high of 214 cases in 2007. Over the ten years, a total of 1,819 cases were reported. The annual crude incidence of campylobacteriosis ranged from a low of 6.4 cases per 100,000 population in 2006 to a high of 8.3 cases per 100,000 population in 2007, but there were no statistically significant differences in campylobacteriosis incidence between the years. The crude incidence rate from 2005 to 2014 was 6.8 cases per 100,000 population.

From 2005 to 2010, Nevada's crude incidence rate of laboratory confirmed campylobacteriosis cases ranged from 5.9 to 7.7 cases per 100,000 population. These rates were statistically significantly lower than the Healthy People 2010 objective for campylobacteriosis (objective: not to exceed an incidence rate of 12.3 laboratory confirmed cases per 100,000 population) (4). From 2011 to 2014, Nevada's crude incidence rates of laboratory confirmed campylobacteriosis ranged from 5.4 to 6.8 cases per 100,000 population. These rates are also significantly lower than the Healthy People 2020 objective (objective: not to exceed an incidence rate of 8.5 laboratory confirmed cases per 100,000 population) (5).

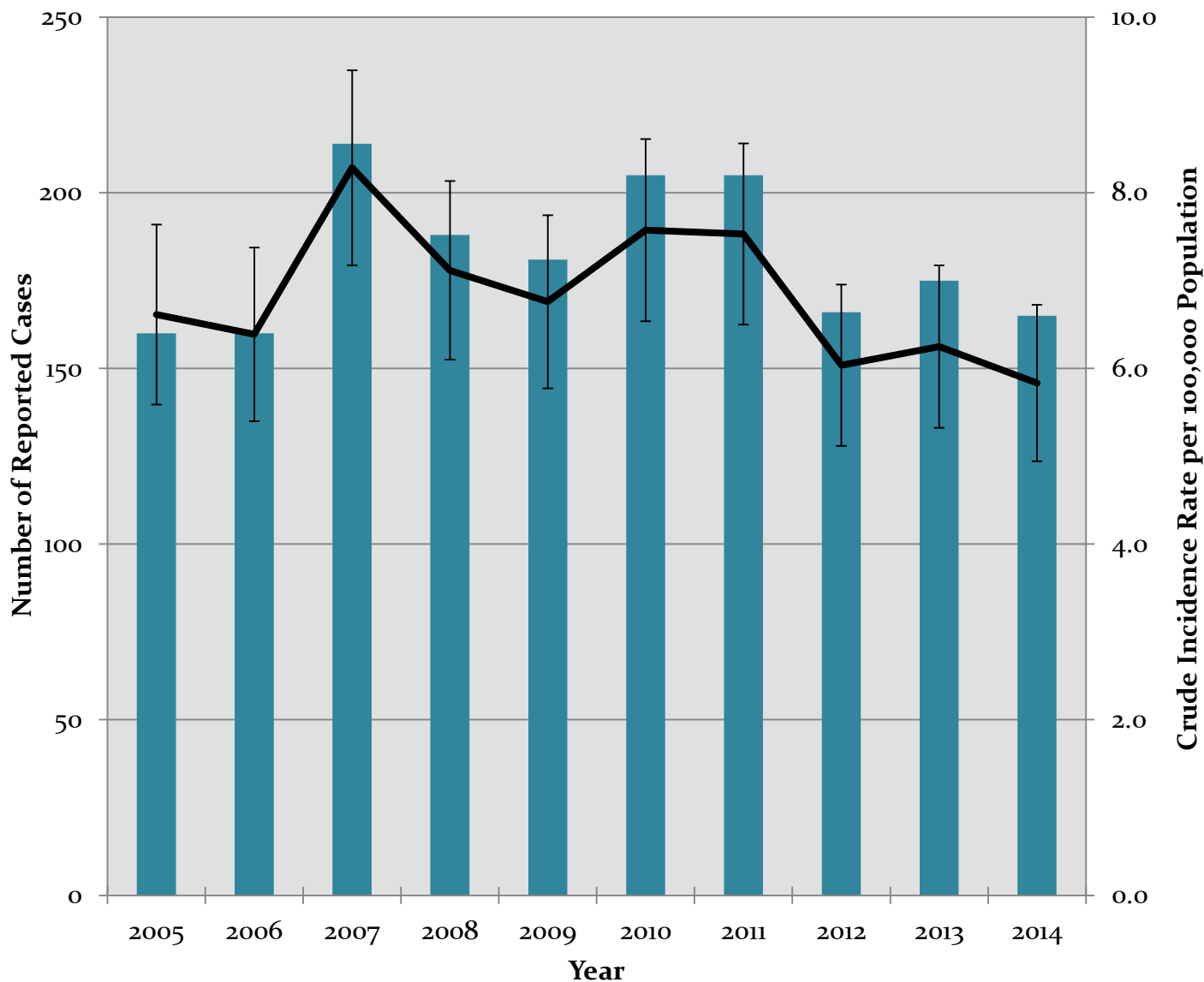
From 2005 to 2014, Southern Nevada Health District had a significantly lower age-adjusted incidence rate (5.4 cases per 100,000 population) than the overall age-adjusted incidence rate for the state (6.8 cases per 100,000 population). Carson City Health and Human Services, Washoe County Health District, and the rural and frontier counties had significantly higher age-adjusted incidence rates (10.3, 10.1, and 12.0 cases per 100,000 population, respectively) than southern Nevada and the overall state rate. Throughout the ten years there were no significant differences year to year within each health district.

Like most foodborne diseases, campylobacteriosis cases typically increase during summer and decline in fall and winter. Between 2008 and 2014 (years for which monthly data is available), campylobacteriosis infections followed this pattern with few exceptions. Cases start to increase in May, peak in August, decline in September, and remain low during winter. However, two anomalies were observed: January consistently had a higher number of cases than other winter and early spring months; and in March 2010, a large increase in the number of campylobacteriosis cases was reported (34 cases), much higher than any other month or year during the 5-year time span. There was no formal outbreak was reported or investigated in March 2010. The number of reported cases ranged between 7 and 34 cases per month, depending on the year.

From 2005 to 2014, a significantly higher age-adjusted incidence rate (5.6 cases per 100,000 population) was observed among residents of Hispanic origin compared to Blacks and Asian/Pacific Islanders (2.4 and 3.4 cases per 100,000 population, respectively). Whites also had a significantly higher age-adjusted incidence rate (5.1 cases per 100,000 population) compared to Blacks and Asian/Pacific Islanders. There were no other significant differences between other race/ethnic groups.

From 2005 to 2014, infants under 1 year of age and children 1-4 years of age had a significantly higher incidence rate compared to the other age groups (15.9 and 16.4 cases per 100,000 population, respectively). The peak age-specific incidence rate for any age group was for infants under 1 year of age in 2005 at 21.5 cases per 100,000 population.

# Figure 1. Number of Reported Cases and Crude Incidence Rates of Campylobacteriosis in Nevada: 2005-2014

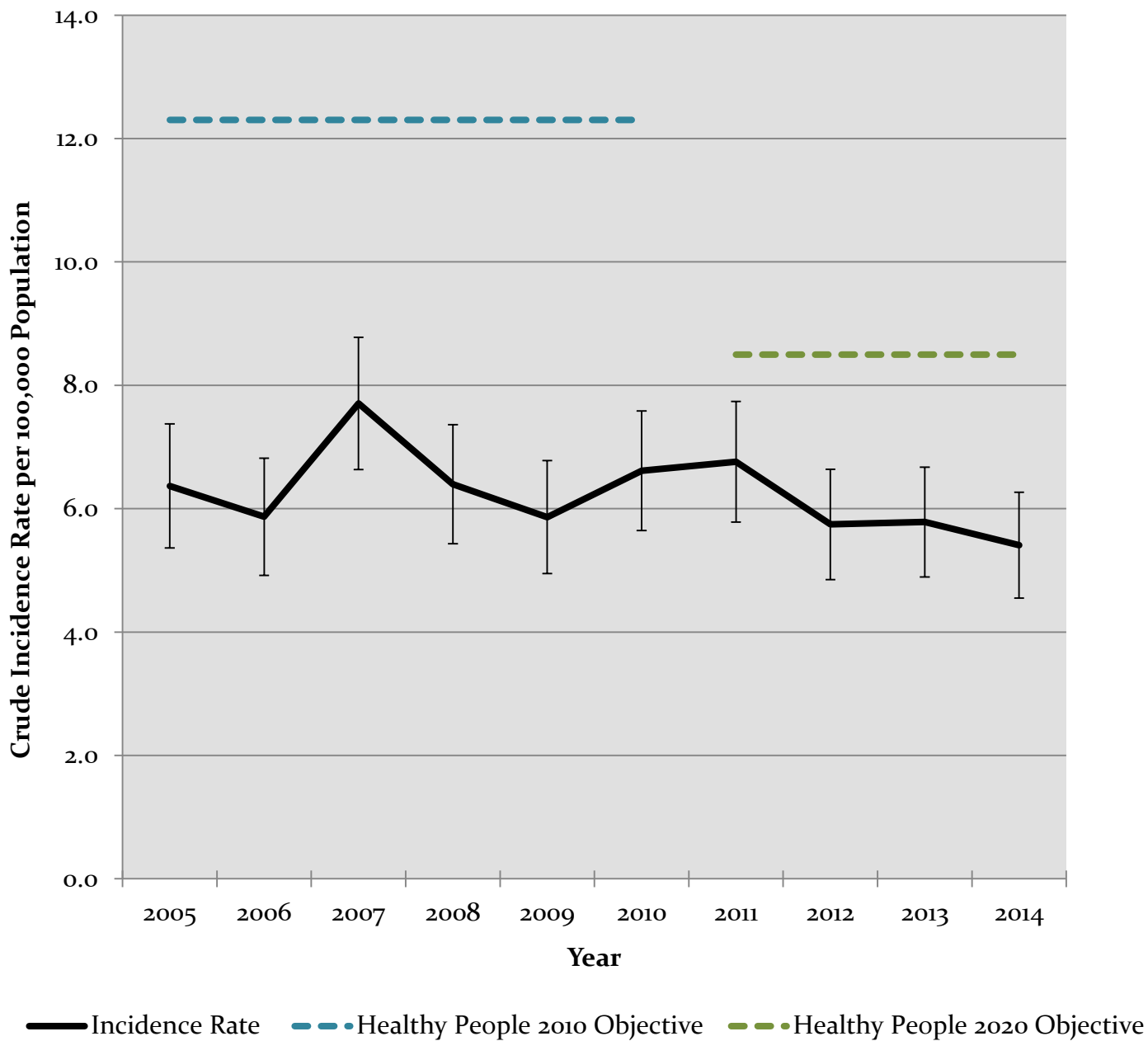


■ Number of Cases
 — Incidence Rate

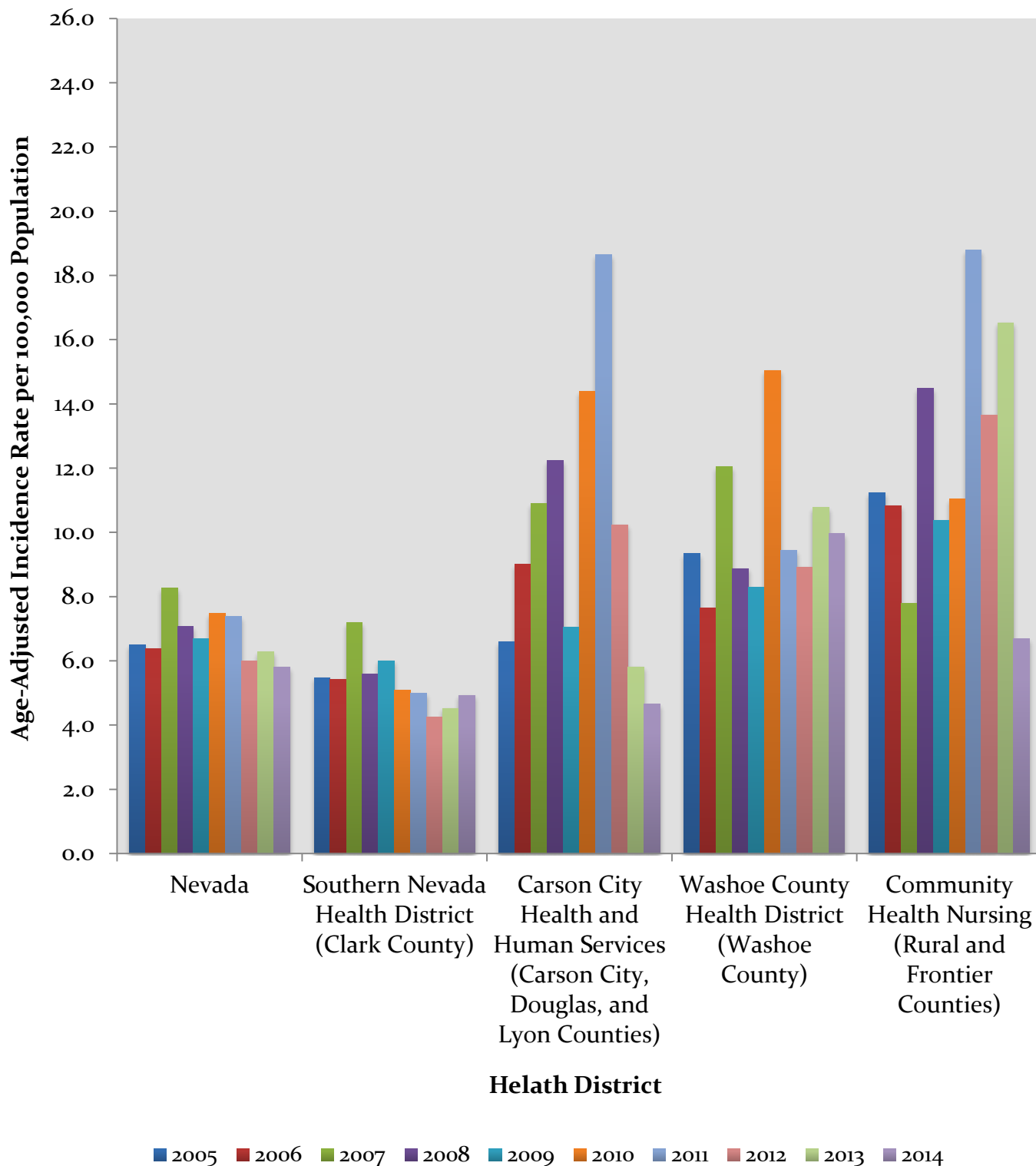
Error bars represent 95% confidence intervals for incidence rates

The crude incidence rate in Nevada from 2005 to 2014 was 6.8 cases per 100,000 population.

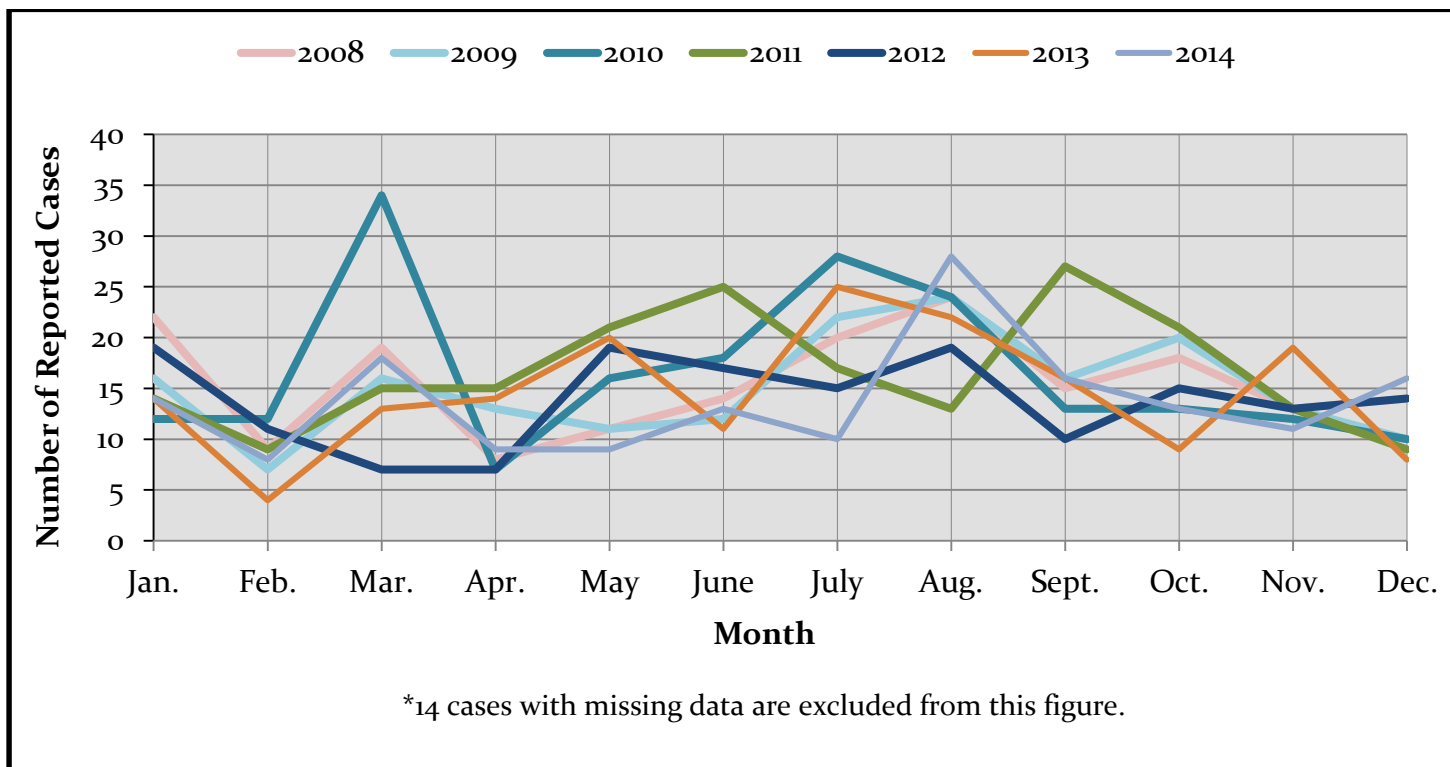
### Figure 2. Crude Incidence Rates of Laboratory Confirmed Campylobacteriosis Cases in Nevada Compared to Healthy People Objectives: 2005-2014



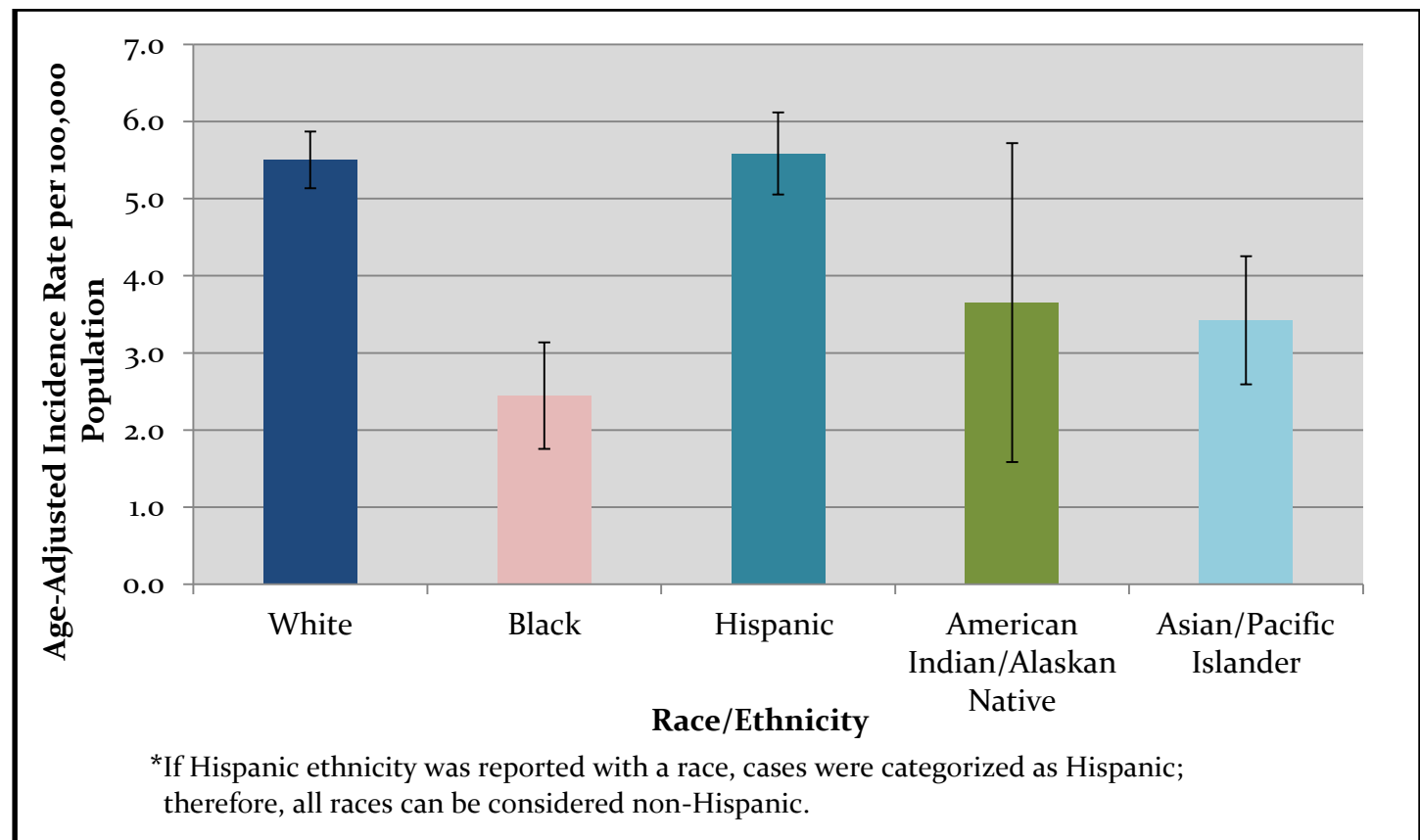
### Figure 3. Age-Adjusted Incidence Rates of Campylobacteriosis in Nevada and Nevada Health Districts: 2005-2014



### Figure 4. Number of Campylobacteriosis Cases\* Reported in Nevada by Month: 2008-2014



### Figure 5. Age-Adjusted Incidence Rates of Campylobacteriosis in Nevada by Race/Ethnicity\*: 2005-2014



# Figures 6A-G. Number of Reported Cases and Crude Incidence Rates of Campylobacteriosis in Nevada by Age Group: 2005-2014

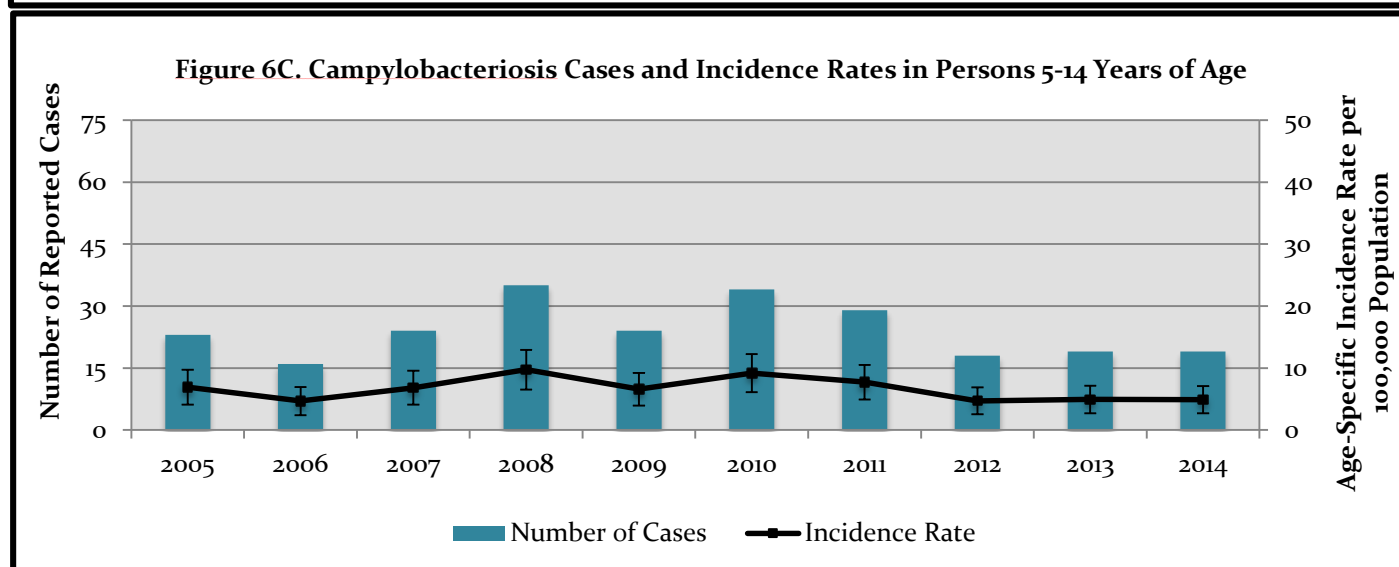
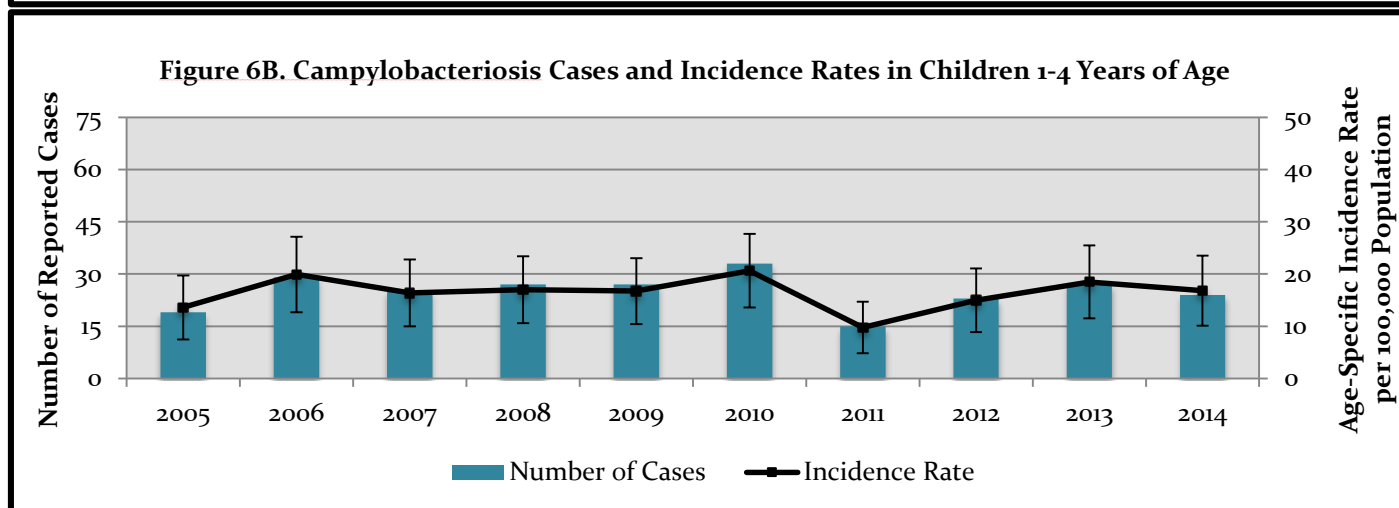
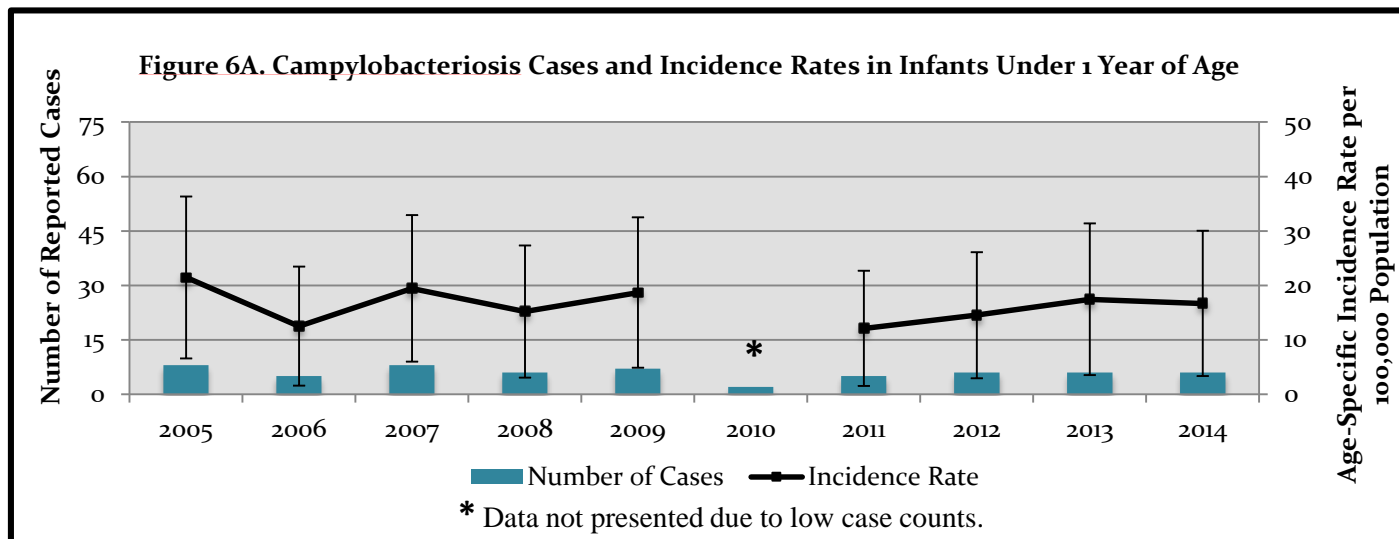




Figure 6D. Campylobacteriosis Cases and Incidence Rates in Persons 15-24 Years of Age

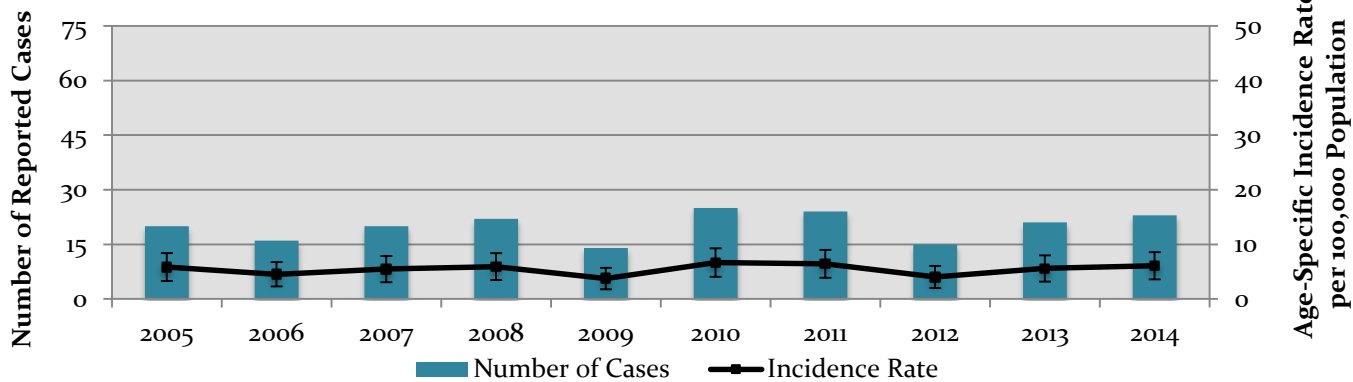


Figure 6E. Campylobacteriosis Cases and Incidence Rates in Persons 25-39 Years of Age

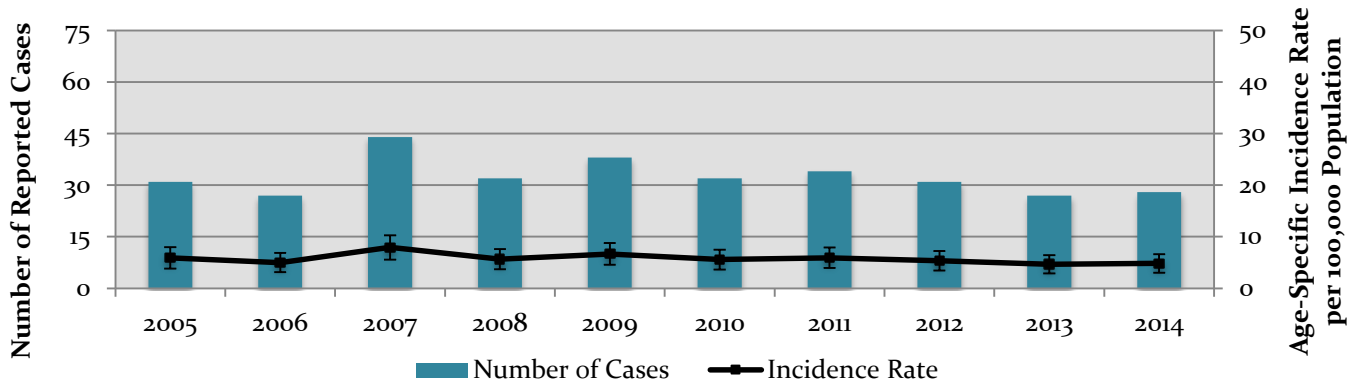


Figure 6F. Campylobacteriosis Cases and Incidence Rates in Persons 40-64 Years of Age

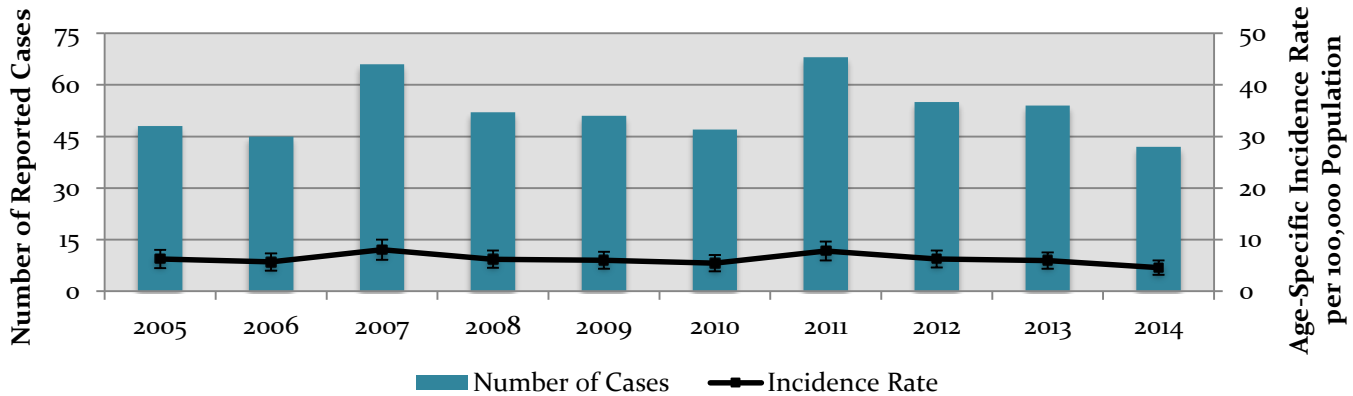
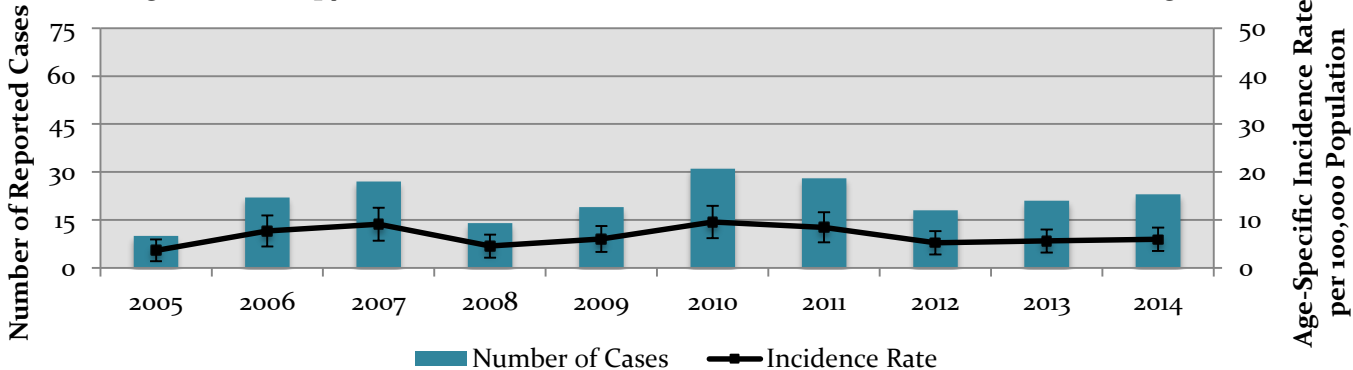


Figure 6G. Campylobacteriosis Cases and Incidence Rates in Persons 65+ Years of Age



## Technical Notes

All Nevada data from 2005 to 2014 came from reported *Campylobacter* infections among Nevada residents (6, 7). The 2012 CDC and Council of State and Territorial Epidemiologists case definition of campylobacteriosis encompasses all cases classified as suspected, probable, or confirmed; all cases of campylobacteriosis 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; 5 such cases had to be excluded. Cases with unknown race/ethnicity, those with race/ethnicity listed as "other," and those with multiple races were excluded from figure 5; 411 such cases were excluded. When used for rates, error bars represent 95% confidence intervals. 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.480. <http://www.leg.state.nv.us/nac/NAC-441A.html#NAC441ASec480>
3. Centers for Disease Control and Prevention. (2014). Campylobacter. National Center for Emerging and Zoonotic Infectious Diseases. Retrieved 2015-10-16. <http://www.cdc.gov/nczved/divisions/dfbmd/diseases/campylobacter/>
4. Centers for Disease Control and Prevention. (2014). Healthy People 2010. CDC Wonder Data 2010. Retrieved 2015-02-27. <http://wonder.cdc.gov/data2010/>
5. U.S. Department of Health and Human Services. (2013). Healthy People 2020. Retrieved 2013-11-04. <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. (2012). Campylobacteriosis. National Notifiable Diseases Surveillance System. Retrieved 2014-02-04. <http://wwwn.cdc.gov/NNDSS/script/casedef.aspx?CondYrID=627&DatePub=1/1/2012 12:00:00 AM>
9. Nevada State Demographer's Office. 2003-2012 ASRHO Estimates and Projections. Division of Public and Behavioral Health edition. Vintage 2012.

## Recommended Citation

Division of Public and Behavioral Health. Office of Public Health Informatics and Epidemiology. *Campylobacteriosis in Nevada, 2005-2014*. Carson City, Nevada. January 2016. e 1.0.

## Acknowledgements

Thank you to all persons who greatly contributed to this publication:

Jennifer Thompson; Kyra Morgan; Peter Dieringer, MPH; and Maximilian Wegener, MPH

For additional information regarding this publication, please contact:

Office of Public Health Informatics and Epidemiology

(775) 684-5911

[outbreak@health.nv.gov](mailto:outbreak@health.nv.gov)

This publication was supported by Cooperative Agreements 1U50OE000037-01 and 1U50CK000257-01 from the Centers for Disease Control and Prevention. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Centers of Disease Control and Prevention.