

Key Findings

Giardiasis is an infection caused by *Giardia* parasites that live in the intestines of infected people and animals and shed in stool (poop). Symptoms of giardiasis include diarrhea, stomach cramps, nausea, and bloating. People can get giardiasis by drinking, eating, or accidentally swallowing something that has been contaminated with even a tiny amount of poop from an infected person or animal. *Giardia* can spread in childcare settings, untreated river water, swimming pool water, and areas where infected animals are kept. People can also get infected with *Giardia* while traveling in areas with poor sanitation and by exposure to poop during sexual contact with someone who is infected.

Giardiasis in California from 2013 through 2019

Total Cases: There were a total of 16,170 new giardiasis cases from 2013 through 2019. This is an average of 2,310 cases each year.

Rate: The average annual rate of new giardiasis cases during 2013-2019 was about 6 cases per 100,000 people in California.

- **By County:** The average rate was highest in San Francisco County (about 23 cases per 100,000 people), followed by Plumas and Marin counties (both with 16 cases per 100,000 people).
- **By Sex:** The average rate was almost twice as high in males (about 8 cases per 100,000 people) than in females (4 cases per 100,000 people).
- **By Age Group:** The average rate was highest in children aged 1 to 4 years (about 8 cases per 100,000 people in this age group), followed by adults aged 25 to 34 years and 45 to 64 years (about 7 cases per 100,000 people in both of these age groups).
- **By Race/Ethnicity:** For cases where race and ethnicity information was available, the highest percentage of cases was in people who reported non-Hispanic White race/ethnicity (about 61%).
- **By Month:** Overall, there were more giardiasis cases in the summer months of July, August, and September than in any other month.

To help prevent giardiasis, people should wash their hands with soap and water before preparing or eating food, and after using the toilet, changing diapers, or touching animals or handling animal poop. Do not swim or let kids swim if sick with diarrhea, and avoid swallowing swimming pool water and untreated water, such as from a river or lake. It is also important to wait to have sex of any kind for several weeks after having diarrhea from giardiasis.

For more information about giardiasis in California, please visit the [CDPH Giardiasis webpage](#). For details about key infectious diseases in California, please visit the [CDPH Surveillance and Statistics Section webpage](#).

Background

Giardiasis is a worldwide diarrheal disease caused by the parasite *Giardia duodenalis* (also referred to as *Giardia lamblia* or *Giardia intestinalis*). In the United States, giardiasis is the most common intestinal parasitic disease¹ and one of the most common causes of waterborne diseases in people,² with an estimated more than 1.2 million cases occurring annually.³ Since 2011, the incidence rate of reported giardiasis cases in the U.S. has remained fairly stable, with less than 7.0 new cases per 100,000 population reported each year.³

Giardia form an outer shell, or cyst, that can survive in the environment for long periods of time.⁴ *Giardia* cysts may be found in water, soil, food, or on surfaces that have been contaminated with feces from infected persons or animals. Millions of cysts are shed in the feces of an infected person or animal, but ingestion of as few as 10 cysts can cause giardiasis.⁵ People can become infected in many ways, such as by drinking untreated contaminated surface or well water, by accidentally swallowing contaminated swimming pool water (*Giardia* cysts are moderately resistant to chlorine⁴), by eating contaminated foods, or by having close contact with an infected person, particularly in a childcare setting or during sexual activity.¹

Symptoms of giardiasis include diarrhea, nausea, bloating, stomach cramps, and dehydration. Acute illness begins 1-2 weeks after exposure and can last 2-6 weeks. Some infections can cause chronic giardiasis with waxing and waning symptoms for months or longer, leading to malnutrition, weight loss, and loose stools.⁶ Other infections can remain asymptomatic. *Giardia* can be diagnosed by a stool test, but because cysts are shed in feces intermittently, it is often difficult to diagnose *Giardia*. There are several prescription drugs that treat *Giardia*.²

This report describes the epidemiology of confirmed and probable giardiasis cases in California from 2013 through 2019. Due to multiple factors that can contribute to underreporting, data in this report are likely underestimates of actual disease incidence. For a complete discussion of the definitions, methods, and limitations associated with this report, please refer to the *Technical Notes*.⁷ The epidemiologic description of giardiasis for earlier surveillance periods can be found in the *Epidemiologic Summary of Giardiasis in California, 2001-2008 and 2009-2012*.^{8, 9}

California Reporting Requirements and Surveillance Case Definition

California Code of Regulations (CCR), Title 17, Section 2500 requires health care providers to report suspected cases of giardiasis to their local health department within seven calendar days of identification or immediately by telephone if an outbreak is suspected.¹⁰ Per CCR, Title 17, Section 2505, laboratories are required to report laboratory testing results suggestive of giardiasis to either the California Reportable Disease Information Exchange (CalREDIE) via electronic laboratory reporting or the local health department; reporting must occur within one working day after the health care provider has been notified.¹¹

California regulations require cases of giardiasis to be reported to the California Department of Public Health (CDPH). CDPH counted cases that satisfied the U.S. Centers for Disease Control and Prevention/Council of State and Territorial Epidemiologists surveillance case definition of a confirmed or probable case. During the 2013-2019 surveillance period, a confirmed case of giardiasis was defined as one with laboratory detection of *Giardia*

organisms, along with clinically compatible illness (as characterized by gastrointestinal symptoms, such as diarrhea, abdominal cramps, bloating, weight loss, or malabsorption). A probable case was defined as one with clinically compatible illness and an established epidemiologic link to a laboratory-confirmed case.¹²

Epidemiology of Giardiasis in California, 2013-2019

CDPH received reports of 16,170 total cases of giardiasis with estimated symptom onset dates from 2013 through 2019. This corresponds to an average of 2,310 cases each year and an average annual incidence rate of 5.9 cases per 100,000 population. Incidence rates increased 32.0% from 2013 (5.0 per 100,000; 1,939 cases) to 2019 (6.6 per 100,000; 2,630 cases) [Figure 1].

County-specific average annual incidence rates per 100,000 population during 2013-2019 ranged from 0 (Alpine County) to 23.2 (San Francisco County, 1,414 cases) [Figure 2]. In addition to San Francisco County, average incidence rates of giardiasis were higher in Plumas County (16.0 per 100,000; 21 cases), Marin County (16.0 per 100,000; 292 cases), Mendocino County (11.9 per 100,000; 74 cases), and Alameda County (11.8 per 100,000; 1,350 cases). Average incidence rates for the surveillance period were 1.5 times higher in Northern California (7.3 per 100,000; 8,705 cases) than in Southern California (4.8 per 100,000; 7,465 cases). By region (see *Technical Notes*), the Bay Area (10.7 per 100,000; 5,760 cases) had the highest average incidence rate, followed by the San Diego Region (8.3 per 100,000; 2,026 cases).

From 2013 through 2019, the average annual incidence rate of giardiasis was almost twice as high among males (7.6 per 100,000; 10,330 cases) than among females (4.0 per 100,000; 5,567 cases); of cases with information on sex, 65.0% of giardiasis case-patients were male and 35.0% were female.

Average annual giardiasis incidence during the surveillance period was highest among children aged 1 to 4 years (8.4 per 100,000; 1,162 cases), followed by adults aged 25 to 34 years (7.3 per 100,000; 2,759 cases) and adults aged 45 to 64 years (6.8 per 100,000; 4,679 cases). Annual incidence rates increased overall from 2013 through 2019 in all age groups except for children aged 1 to 4 years and persons aged 15 to 24 years [Figure 3]. Rates increased most among adults aged 25 to 34 years (71.5% rise from 2013 [5.3 per 100,000; 287 cases] to 2019 [9.1 per 100,000; 493 cases]), and among adults aged 55 to 64 (62.7% rise from 2013 [5.3 per 100,000; 233 cases] to 2019 [8.6 per 100,000; 419 cases]).

For giardiasis cases with complete race/ethnicity information (see *Technical Notes*), the highest percentage of cases was among case-patients who reported non-Hispanic White race/ethnicity (61.1%). Case-patients reported non-Hispanic White race/ethnicity more frequently than would be expected based on the demographic profile of California during the same time period (61.1% vs. 38.0%, respectively) [Figure 4].

From 2013 through 2019, the highest number of giardiasis cases by month of estimated illness onset occurred in the summer months of July, August, and September [Figure 5].

There were no reported waterborne or foodborne outbreaks of giardiasis that occurred in California during the 2013-2019 surveillance period.

Figure 1. Giardiasis Cases and Incidence Rates by Year of Estimated Illness Onset, California, 2013-2019

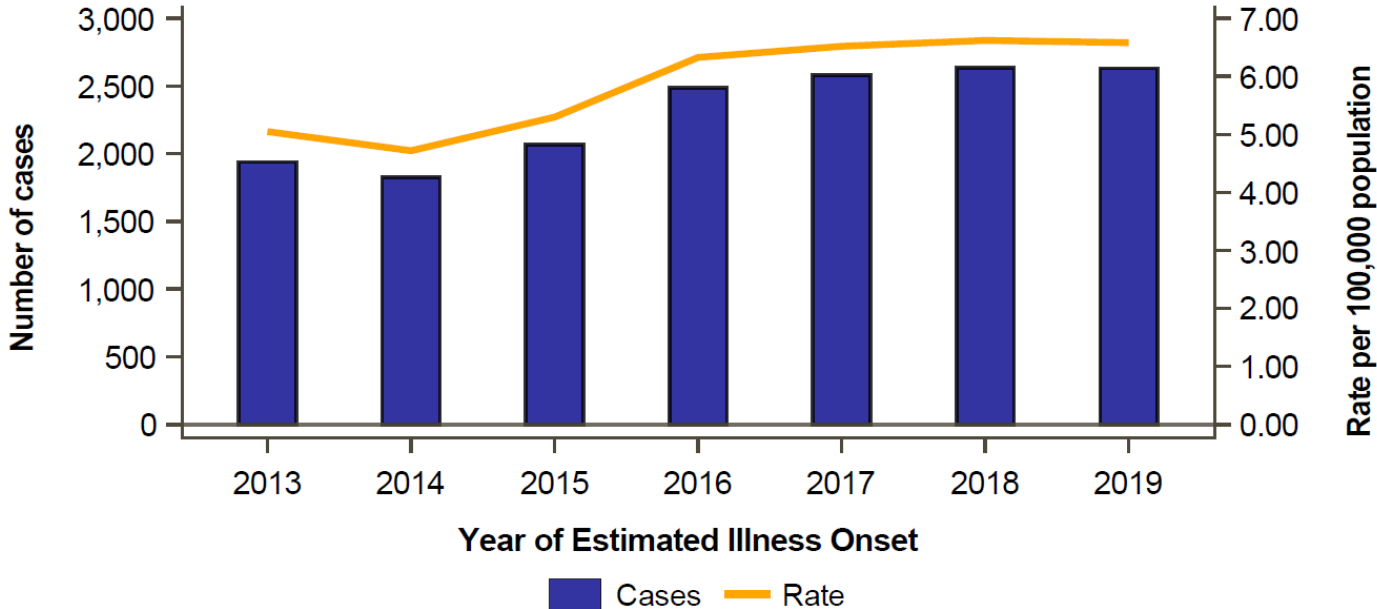


Figure 2. Giardiasis Average Annual Incidence Rates by County, California, 2013-2019

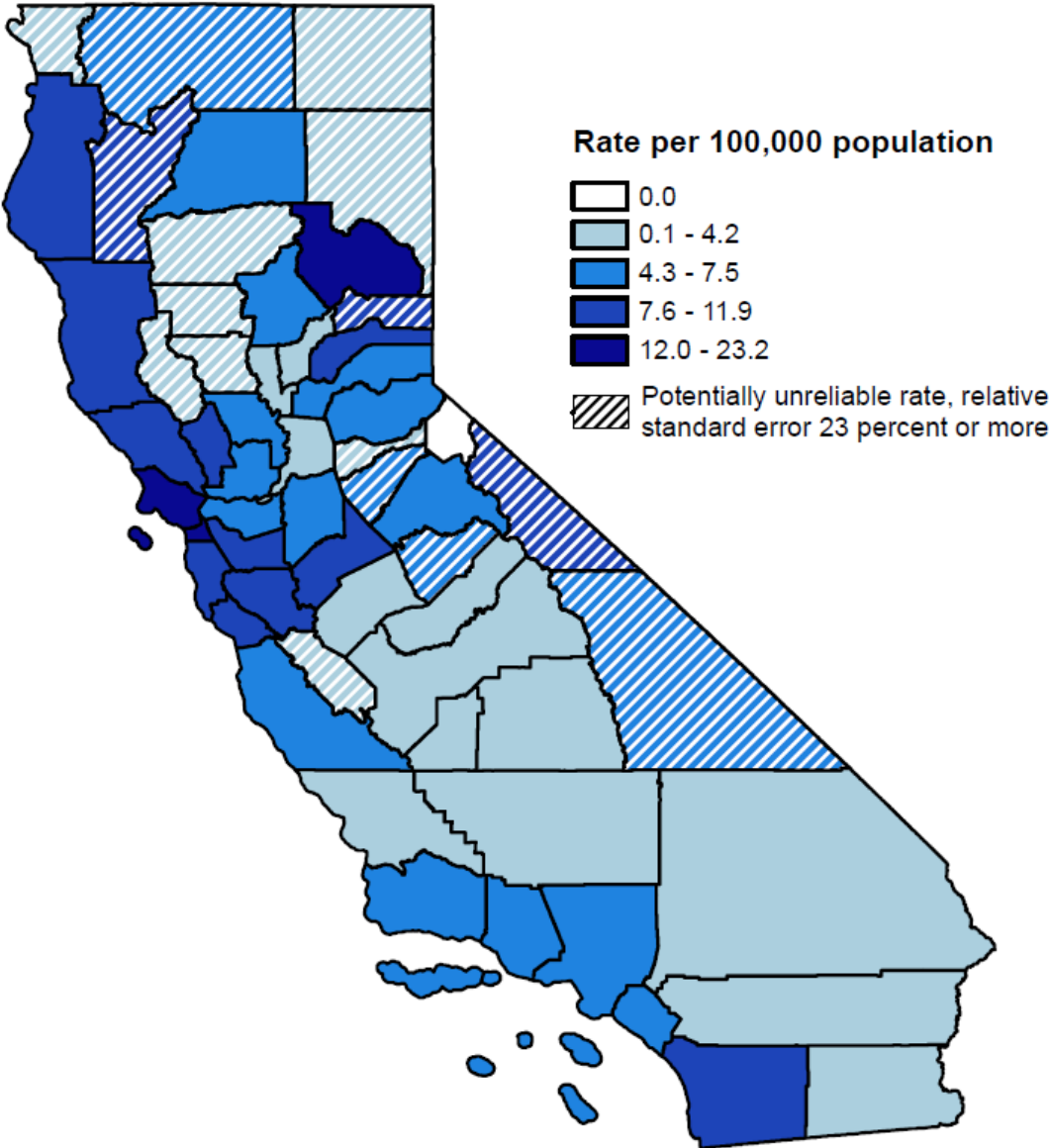


Figure 3. Giardiasis Incidence Rates by Age Group and Year of Estimated Illness Onset, California, 2013-2019

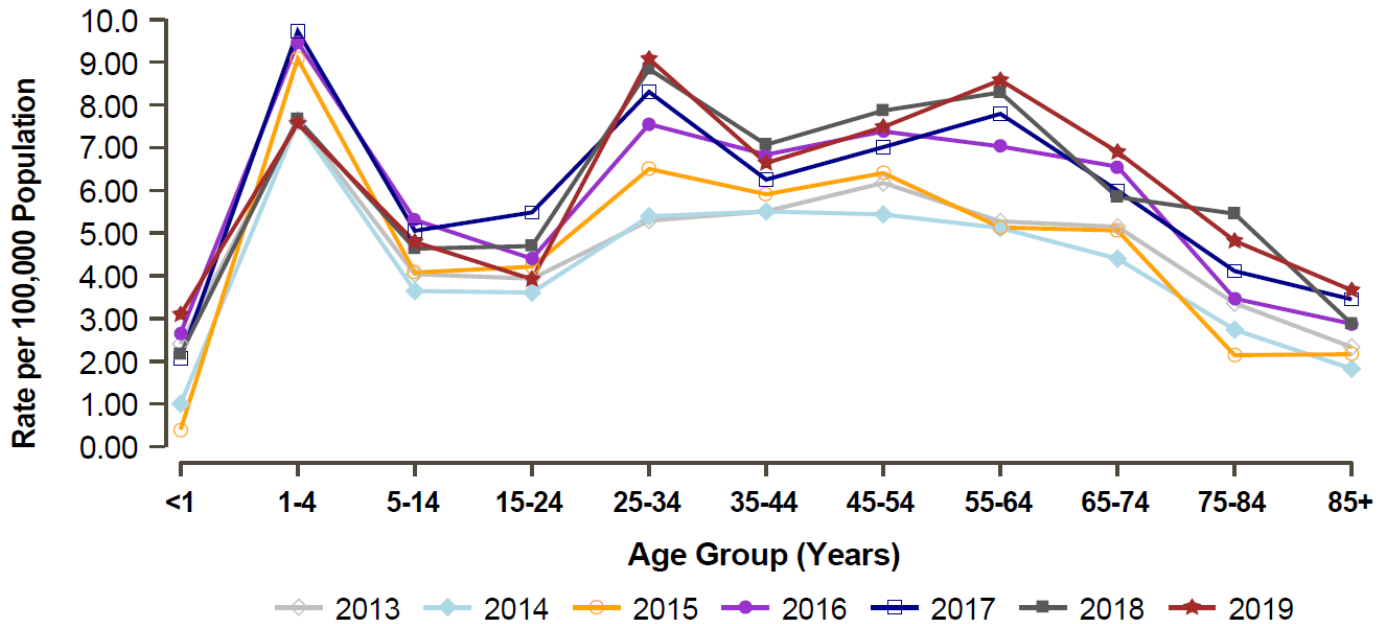
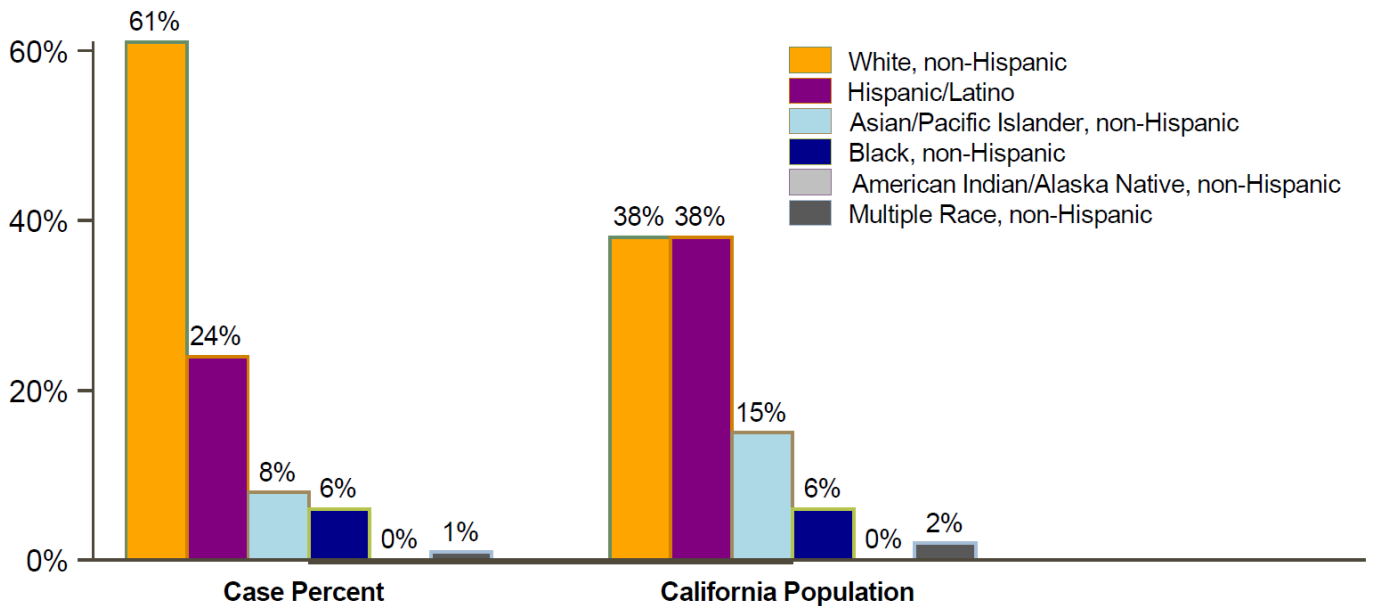
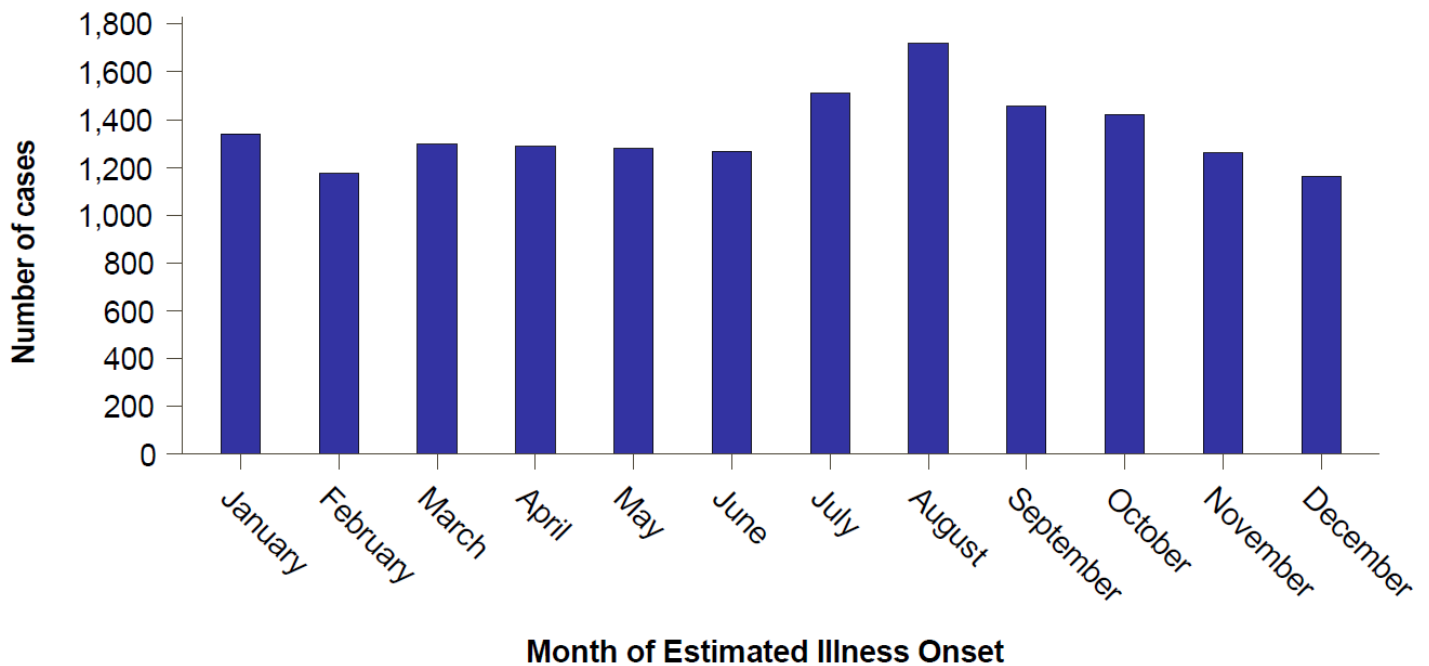


Figure 4. Giardiasis Cases and Population by Race/Ethnicity, California, 2013-2019



36.5% (n=5903) of reported incidents of Giardiasis did not identify race/ethnicity and 5.4% (n=866) of incidents identified as 'Other' race/ethnicity and are not included in the Case Percent calculation. Information presented with a large percentage of missing data should be interpreted with caution.

Figure 5. Giardiasis Cases by Month of Estimated Illness Onset, California, 2013-2019



Comments

Incidence rates of giardiasis per 100,000 Californians increased moderately from 5.0 in 2013 to 6.6 in 2019. The peak rate was in 2018 and 2019 (6.6 per 100,000 population in both years). Cases are likely to be underreported and therefore rates are likely to be underestimated because infected persons may have no symptoms and giardiasis can be difficult to diagnose.¹³

Overall, incidence rates during the 2013-2019 surveillance period (average rate of 5.9 per 100,000) increased moderately compared to the 2009-2012 surveillance period (average rate of 4.7 per 100,000), as described in previous epidemiologic summaries.⁸ The sex, racial/ethnic, and regional epidemiologic profiles of incident cases were similar to those reported in epidemiologic summaries from earlier years.^{7, 8} However, unlike in previous surveillance periods, the 2013-2019 surveillance period saw an increased incidence among adults aged 25 to 34 years and 45 to 64 years as compared to other age groups; during 2013-2019, adults in these age groups were almost as likely to get giardiasis as children aged 1 to 4 years.

California's 2013-2019 rates were similar to national giardiasis incidence rates. However, the age distribution of incident cases in the U.S. and California differed; children aged 1 to 4 years in both the U.S. and California had the highest incidence rates, but adults in California experienced higher incidence compared to adults in the U.S. The distribution of giardiasis cases by sex in the U.S. and California was similar.^{14, 15, 16, 17}

To prevent *Giardia* infection, persons should practice proper hand hygiene before preparing or eating food, and after using the toilet, changing diapers, or touching animals or handling animal feces. Persons experiencing diarrhea should avoid swimming and should also avoid sexual contact for several weeks after diarrhea from giardiasis has subsided. Persons swimming or recreating in and around water should avoid swallowing swimming pool water

and untreated water, such as from rivers or lakes.

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- ³ U.S. Centers for Disease Control and Prevention (CDC). [Giardiasis Summary Report – National Notifiable Diseases Surveillance System, United States, 2018.](https://www.cdc.gov/healthywater/surveillance/giardiasis/giardiasis-2018.html) Atlanta, Georgia: U.S. Department of Health and Human Services, CDC, 2019. Updated February 18, 2020. Accessed April 2, 2021. <https://www.cdc.gov/healthywater/surveillance/giardiasis/giardiasis-2018.html>
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¹⁰ [Reportable Diseases and Conditions: Reporting to the Local Health Authority, 17 CCR § 2500 \(2021\)](#).

<https://govt.westlaw.com/calregs/Document/IA48A8EC35A2011EC8227000D3A7C4BC3>

¹¹ [Reportable Diseases and Conditions: Notification by Laboratories, 17 CCR § 2505 \(2021\)](#).

<https://govt.westlaw.com/calregs/Document/IA4E977A35A2011EC8227000D3A7C4BC3>

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