

Introduction

Lyme disease is a bacterial infection, often caused by the bacterium *Borrelia burgdorferi*, and is among the most commonly reported vector-borne diseases in Pennsylvania. The disease is transmitted to humans through the bite of an infected *Ixodes scapularis* tick, commonly known as a deer tick or blacklegged tick. Deer ticks are widespread throughout the Commonwealth and have been identified in every county.

Symptoms of Lyme disease may include fever, headache, fatigue, and a characteristic bull's-eye rash (erythema migrans). Early diagnosis and treatment are important to prevent the infection from spreading to other parts of the body. However, some individuals may continue to experience prolonged or chronic symptoms even after completing antibiotic treatment. Given the high prevalence of Lyme disease in Pennsylvania, continued surveillance of reported cases is important for monitoring disease trends and informing public health efforts.

Prior to 2022, Pennsylvania followed the national U.S. Centers for Disease Control and Prevention (CDC)/Council of State and Territorial Epidemiologists (CSTE) Lyme disease surveillance case definition, which required both clinical and laboratory evidence for a case to be reported. Beginning in 2022, high-incidence states, including Pennsylvania, adopted a revised surveillance case definition that allows laboratory-confirmed cases to be reported without accompanying clinical information. This change reduced the reporting burden on healthcare providers and contributed to an increase in reported Lyme disease cases. In addition, the COVID-19 pandemic affected disease surveillance and reporting, resulting in fewer reported cases in 2020 and 2021 than would otherwise have been expected.

At a Glance

- In 2024, Pennsylvania reported 16,624 cases of Lyme disease, with an incidence rate of 127 cases per 100,000 residents.
- Preliminary surveillance data indicate that Pennsylvania reported 18,748 cases in 2025 and approximately 8,000 cases through July 2026.
- In 2024, rural Pennsylvania reported 6,497 cases with an incidence rate of 193 cases per 100,000 residents, while urban Pennsylvania reported 10,123 cases with an incidence rate of 105 cases per 100,000 residents.
- In 2024, Allegheny County reported the highest number of Lyme disease cases (2,628) and had an incidence rate of 214 cases per 100,000 residents.
- Among Pennsylvania's regions, the Southwest reported the highest number of Lyme disease cases (6,437).
- Reported Lyme disease cases in Pennsylvania increased more than sevenfold between 2000 and 2024, which may reflect a combination of increased disease

burden, improvements in disease surveillance and reporting, and changes to the surveillance case definition over time.¹

- Between 2010 and 2023, Pennsylvania consistently ranked among the top 10 states with the highest Lyme disease incidence rates.
- In Pennsylvania, males accounted for 57 percent of reported Lyme disease cases, compared with 43 percent among females.
- Adults ages 55 and older accounted for 44 percent of Lyme disease cases in rural Pennsylvania, compared with 36 percent of cases in urban Pennsylvania.

Reported Lyme Disease Cases Have Increased Over Time

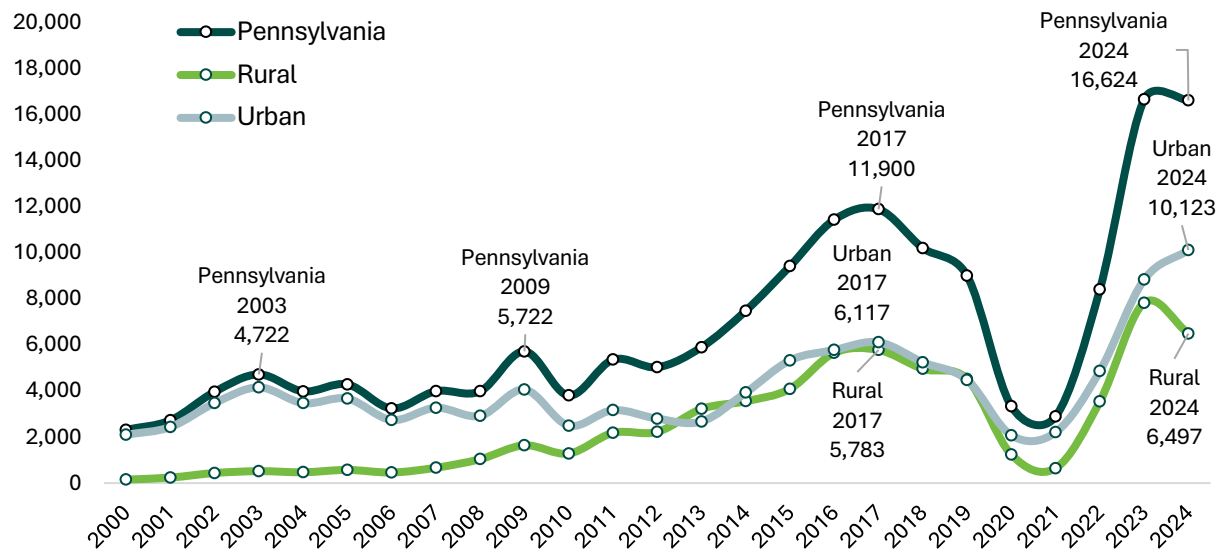
Since 2000, the number of reported Lyme disease cases in Pennsylvania has continued to rise. The Commonwealth reported 2,315 cases in 2000, compared with 16,624 cases reported in 2024, representing an increase of more than sevenfold over the past 24 years. This increase may reflect a combination of a growing burden of Lyme disease, improvements in disease surveillance and reporting, and changes to the national surveillance case definition.

Reported cases declined from 2020 to 2021, largely because the COVID-19 pandemic disrupted disease surveillance and reporting activities. Following the adoption of the revised surveillance case definition in 2022, reported cases increased sharply and have remained at historically high levels.

From 2000 to 2010, urban Pennsylvania consistently reported more than twice as many Lyme disease cases as rural Pennsylvania. Between 2010 through 2017, the gap in reported case counts between urban and rural Pennsylvania narrowed. Although, since that time, cases in urban Pennsylvania has widened. Despite reporting fewer total cases, rural Pennsylvania has consistently experienced a higher incidence rate than urban Pennsylvania, which may be partially attributable to rural Pennsylvania's smaller population.

¹ Surveillance for Lyme Disease After Implementation of a Revised Case Definition — United States, 2022 (<https://pmc.ncbi.nlm.nih.gov/articles/PMC10899080/>).

Figure 1: Lyme Disease Cases in Rural and Urban Pennsylvania, 2000 to 2024

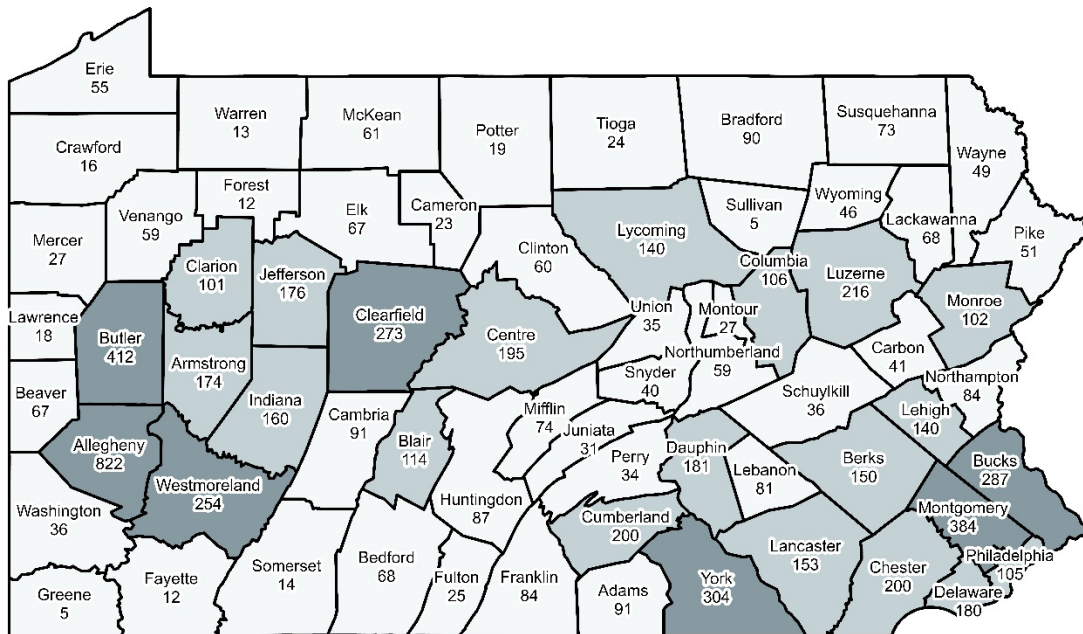


*Data Source: PA-NEDSS; Pennsylvania Vital Statistics, Pennsylvania Department of Health.
Note: Urban and rural cases may not sum to the Pennsylvania total due to redacted county-level data.*

Geographic Trends in Lyme Disease Across Pennsylvania

Although the number of reported Lyme disease cases has increased over time, the overall geographic distribution of cases has remained relatively consistent. Figure 2 shows the distribution of reported Lyme disease cases by county in 2014 (7,487 cases reported statewide). Higher numbers of reported cases were concentrated in the southwestern and southeastern regions of the state. This pattern continues in 2024 (Figure 3), even as case numbers continued to rise (16,624 cases reported statewide).

Figure 2: Number of Reported Lyme Disease Cases by Pennsylvania County, 2014

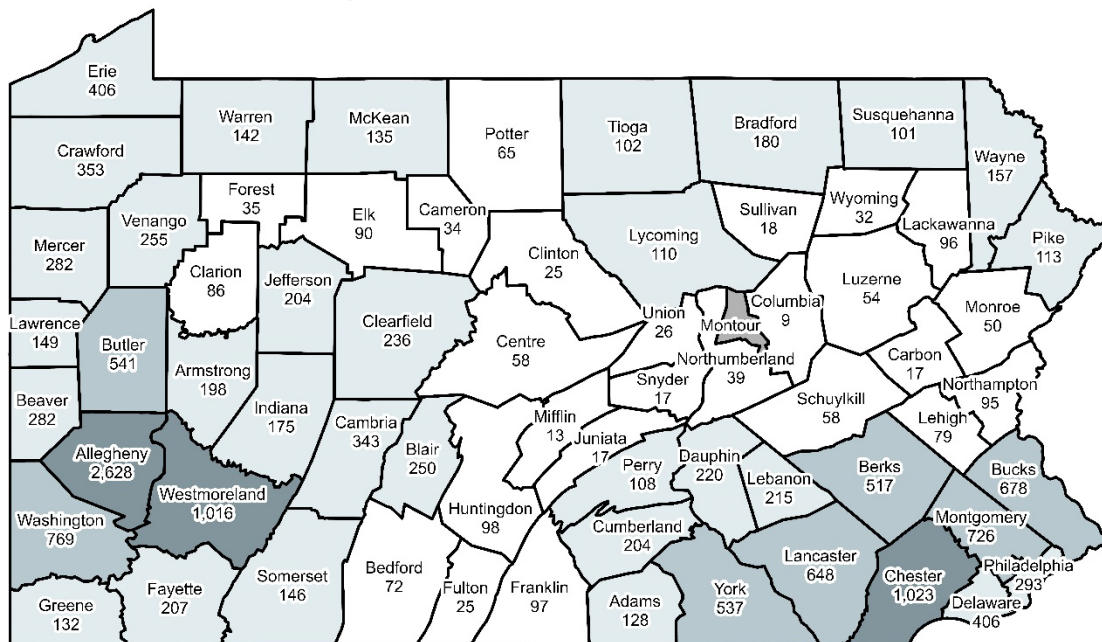


Statewide = 7,487 Cases

- <100 Cases
- 100 to 249 Cases
- 250+ Cases

Data Source: PA-NEDSS; Pennsylvania Vital Statistics, Pennsylvania Department of Health.

Figure 3: Number of Reported Lyme Disease Cases by Pennsylvania County, 2024



Statewide = 16,624 Cases

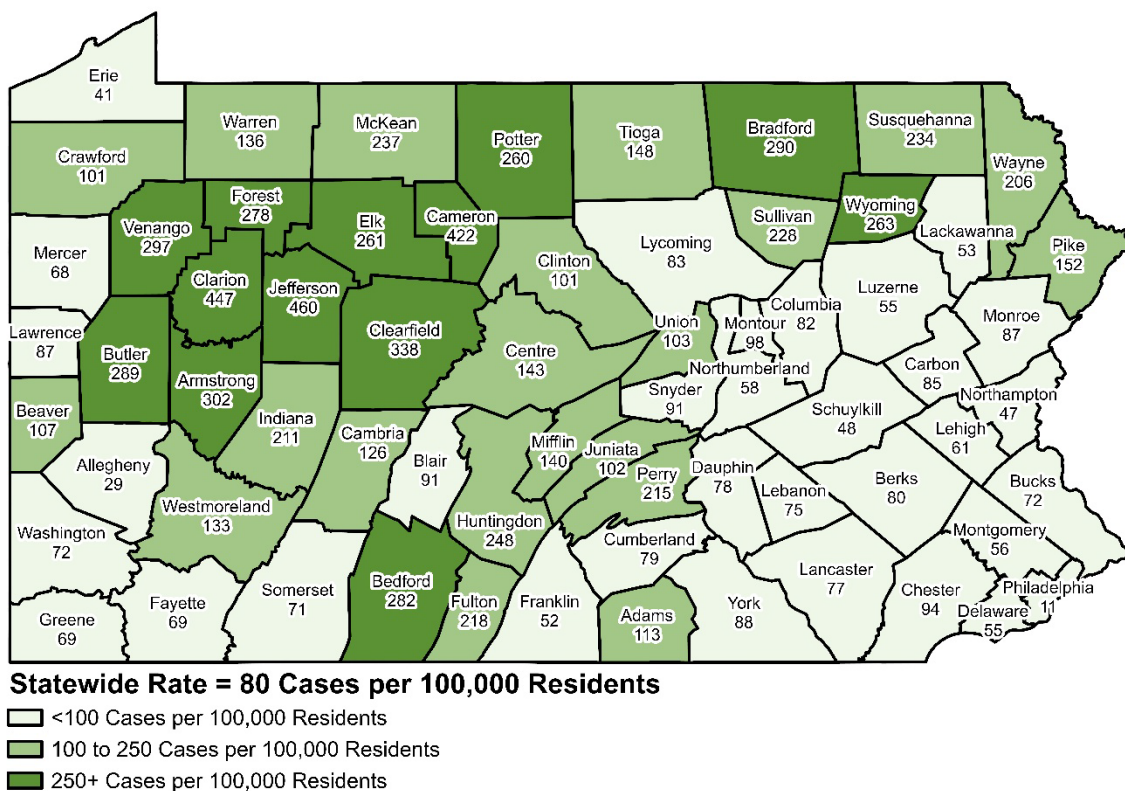
- <100 Cases
- 100 to 499 Cases
- 500 to 999 Cases
- 1,000+ Cases
- Cases Redacted

Data Source: PA-NEDSS; Pennsylvania Vital Statistics, Pennsylvania Department of Health.

When comparing Lyme disease cases across counties, incidence rates (cases per 100,000 residents) provide a more meaningful measure than total reported cases because they account for differences in population sizes. As a result, incidence rates more accurately identify counties that may be experiencing the greatest burden of disease and highlight persistent geographic hotspots.

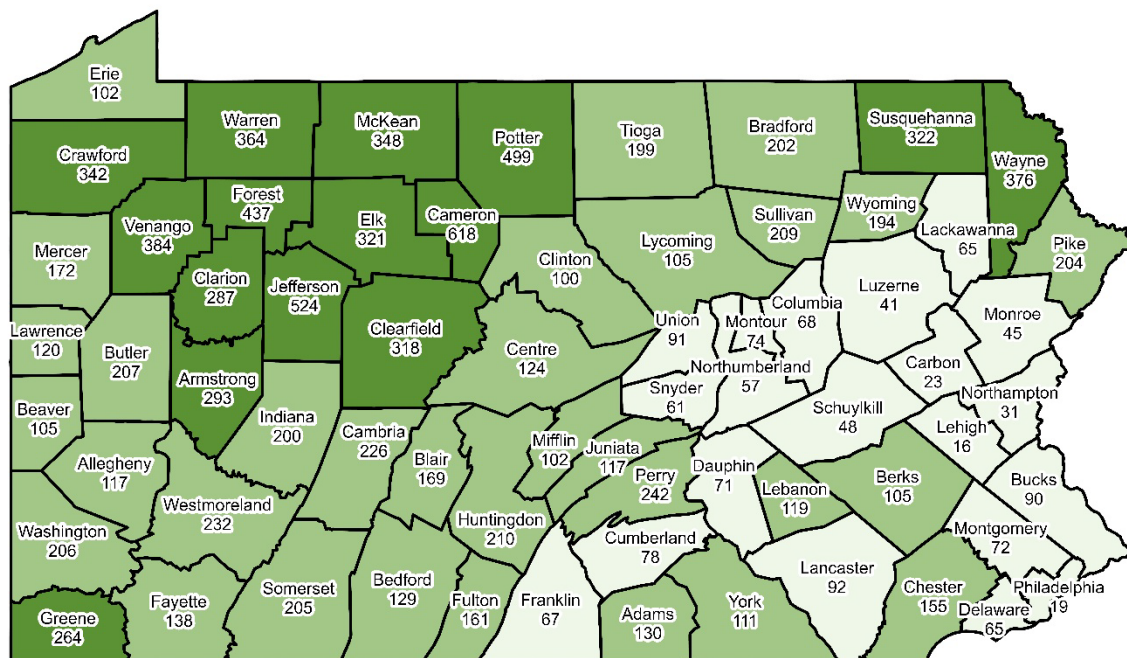
Figure 4 shows the average annual county incidence rate from 2015 to 2019, prior to the COVID-19 pandemic and the 2022 surveillance case definition change. During this period, all 13 counties with the highest incidence rates were rural and were primarily concentrated in the northwestern part of the state, with the highest rates being in Jefferson (460 cases per 100,000) and Clarion (447 cases per 100,000) counties. This geographic pattern continues in Figure 5, which shows the average annual county incidence rates from 2022 to 2024. Although Pennsylvania's average annual incidence rates increased from 80 to 107 cases per 100,000 residents, the overall geographic concentration of counties with the highest incidence rates changed very little.

Figure 4: Average Annual Incidence Rate (Cases per 100,000 Residents) by Pennsylvania County, 2015 to 2019



Data Source: PA-NEDSS; Pennsylvania Vital Statistics, Pennsylvania Department of Health.

Figure 5: Average Annual Incidence Rate (Cases per 100,000 Residents) by Pennsylvania County, 2022 to 2024



Statewide Rate = 107 Cases per 100,000 Residents

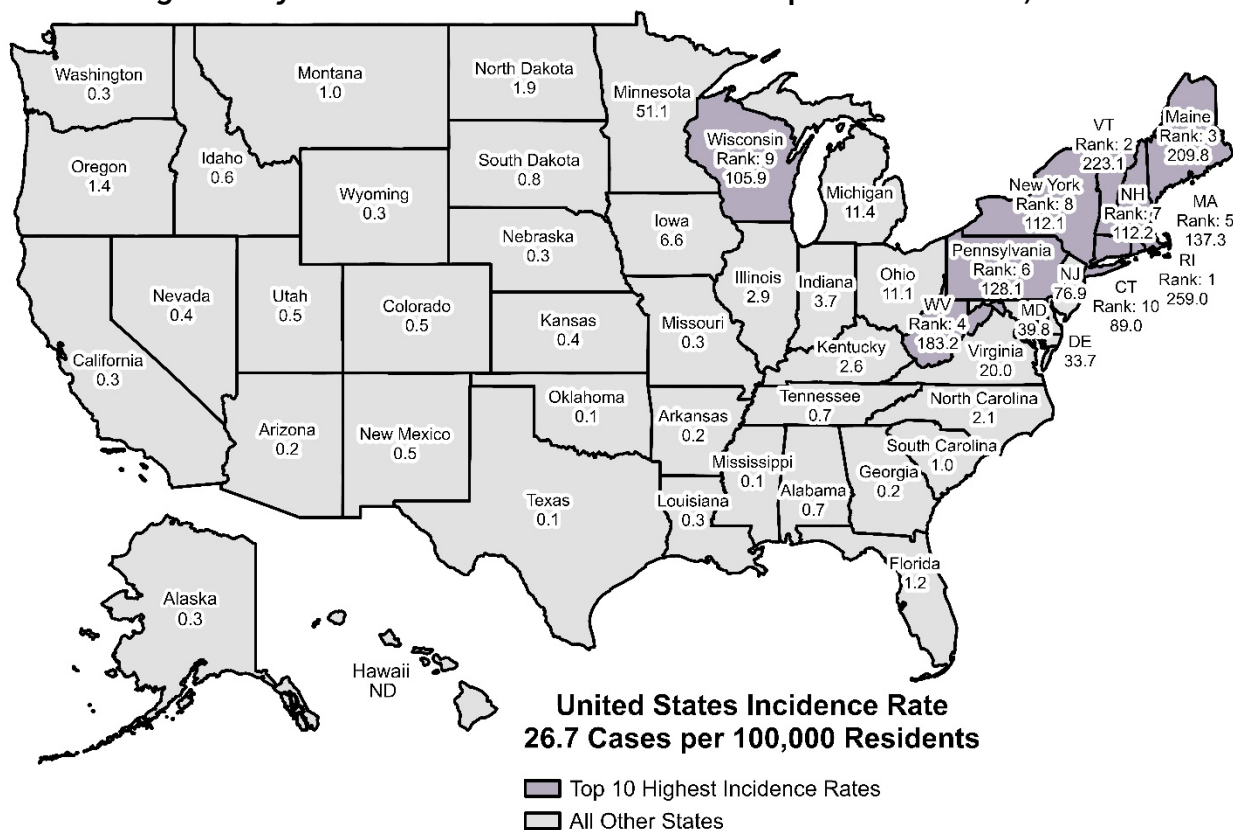
- <100 Cases per 100,000 Residents
- 100 to 249 Cases per 100,000 Residents
- 250+ Cases per 100,000 Residents

Data Source: PA-NEDSS; Pennsylvania Vital Statistics, Pennsylvania Department of Health.

Pennsylvania Continues to Rank Among the Top 10 States for Lyme Disease Incidence

Lyme disease is reported throughout the United States, but it is most common in the Northeast, Mid-Atlantic, and portions of the Upper Midwest. Between 2010 and 2023, Pennsylvania consistently ranked among the top 10 states with the highest Lyme disease incidence rates. In 2023, Pennsylvania ranked 6th in the nation with an incidence rate of 128 cases per 100,000 residents.

Figure 6: Lyme Disease Incidence Rates and Top-Ranked States, 2023



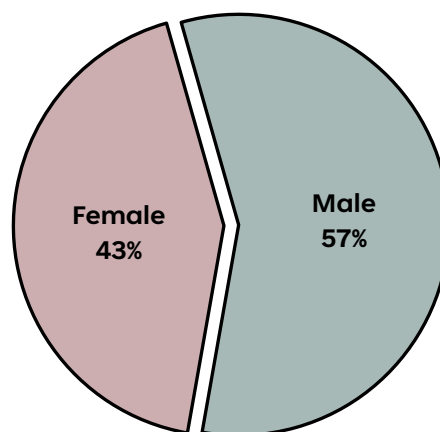
Data Source: U.S. Centers for Disease Control and Prevention.

Note: No cases of Lyme disease were reported in Hawaii.

Demographic Characteristics of Reported Lyme Disease Cases in Pennsylvania

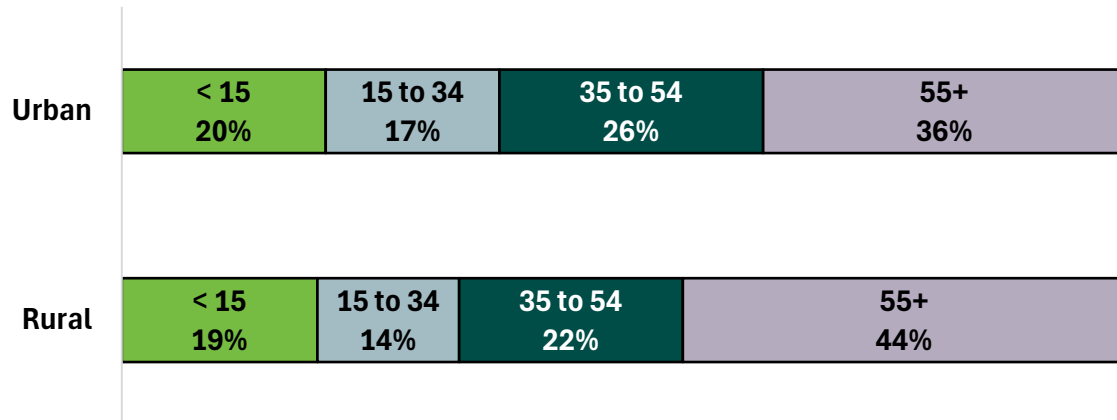
Lyme disease affects Pennsylvanians across all ages and both sexes; however, reported cases vary by demographic characteristics. In Pennsylvania, over the past 20+ years, males (57 percent) have accounted for a greater share of reported Lyme disease cases than females (43 percent), as seen in Figure 7. As for age groups, adults ages 55 and older represent a substantial proportion of reported cases in both rural (44 percent) and urban (36 percent) Pennsylvania.

Figure 7: Lyme Disease by Gender, 2000 to 2023



Data Source: PA-NEDSS; Pennsylvania Vital Statistics, Pennsylvania Department of Health.

Figure 8: Lyme Disease Cases by Age for Rural and Urban Pennsylvania, 2000 to 2023



Data Source: PA-NEDSS; Pennsylvania Vital Statistics, Pennsylvania Department of Health.

Appendix

2022 Change to the Lyme Disease (*Borrelia burgdorferi*) Surveillance Case Definition

Beginning in 2022, the CDC/CSTE Lyme disease surveillance case definition was revised for high-incidence jurisdictions. High-incidence jurisdictions are defined as areas with an average Lyme disease incidence rate of at least 10 confirmed cases per 100,000 residents for three consecutive years. In these jurisdictions, including Pennsylvania, laboratory-confirmed cases can be reported without requiring additional clinical information.

Incidence Rate (cases per 100,000 residents)

Calculated by dividing the number of reported Lyme disease cases by the total population of the geographic area and multiplying the result by 100,000. This allows comparisons between areas with different population sizes. Note that incidence rates presented in this report were calculated using the U.S. Census Bureau's Population and Housing Unit Estimates to maintain consistency with the Center for Rural Pennsylvania's Rural Data Dashboard.

Data Sources:

Pennsylvania Data

- [Cases and Incidence Rates: Tickborne Diseases, Infectious Disease, Pennsylvania Department of Health](#)
- [Case Demographics: Enterprise Data Dissemination Informatics Exchange \(EDDIE\), Pennsylvania Department of Health](#)

National Data

- [Lyme Disease Surveillance Data: U.S. Centers for Disease Control and Prevention](#)

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