North Carolina Legionellosis Annual Report 2025

NC DEPARTMENT OF HEALTH AND HUMAN SERVICES
Division of Public Health

Legionellosis

2025 Key Points

- 310 cases of legionellosis were reported in North Carolina in 2025, which is a 54% increase in cases compared to the 201 cases reported in 2024
- One outbreak was reported in North Carolina in 2025

Legionellosis is an illness caused by the bacterium *Legionella.* It includes Legionnaires' Disease (LD), which is a severe form of pneumonia (lung infection), Pontiac fever, a less commonly reported type of legionellosis which is a milder illness without pneumonia, and extrapulmonary legionellosis, which is a rare type of legionellosis where an infection with *Legionella* occurs outside the lungs.

LD is confirmed by laboratory testing in a patient with compatible clinical findings. The CDC recommends *Legionella* urine antigen test (UAT) paired with lower respiratory specimen testing by culture or molecular methods for diagnosis of LD. UAT typically only detects *Legionella pneumophila* serogroup 1, while culture and many molecular tests can detect additional *Legionella* species and serogroups. Another benefit of clinical culture is that it can be compared with positive environmental samples to help identify possible sources of infection.

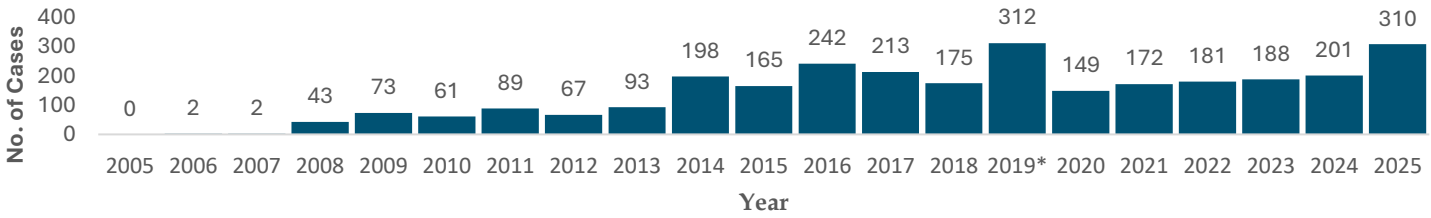
Most healthy people exposed to *Legionella* don't get sick. People at increased risk of getting sick include:

- People 50 years of age or older
- Current or former smokers
- People with chronic health conditions like cancer, lung disease, diabetes, kidney failure, liver failure
- People with weakened immune systems

Common sources of exposure include improperly maintained water systems such as:

- Hot tubs
- Decorative fountains
- Cooling towers
- Hot water tanks
- Large plumbing systems
- Misting devices
- Vehicle windshield wiper fluid tanks (if filled with water instead of wiper fluid)

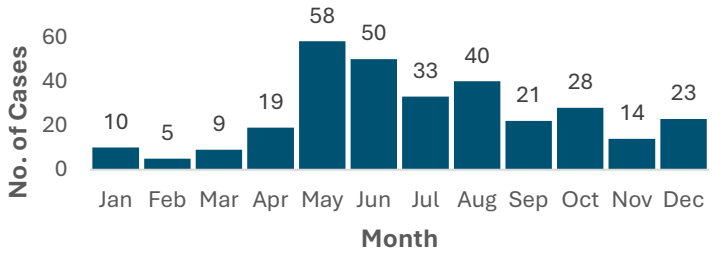
NC 2005-2025 Legionellosis case counts by year



*2019 Mountain State Fair outbreak with 136 confirmed cases

310 cases of Legionellosis were reported in North Carolina in 2025, which is a 54% increase in cases compared to the 201 cases reported in 2024. While the number of annual cases has been steadily increasing since the COVID-19 pandemic, these numbers may be an underestimate. Legionellosis is likely underdiagnosed because its symptoms resemble pneumonia caused by other pathogens, which may result in underutilization of *Legionella* specific tests.

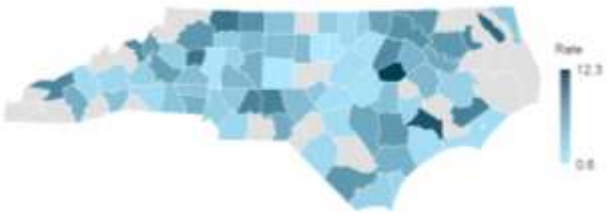
NC 2025 Legionellosis cases by month



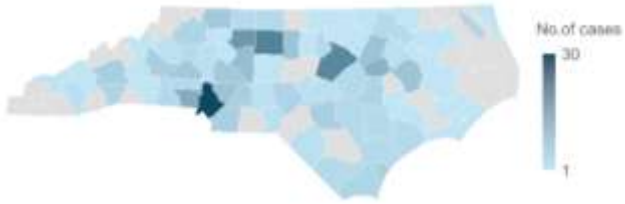
Legionellosis cases are reported throughout the year, but cases generally increase during warmer and humid weather. In 2025, cases started to increase in May and remained elevated through the summer.

Legionellosis

NC 2025 Legionellosis case incidence rate by county



NC 2025 Legionellosis case number by county



Cases are widespread with 73 of North Carolina's 100 counties reporting at least one case during 2025. The high incidence rates observed in low-population counties should be interpreted with caution as rates may appear disproportionately elevated in areas with smaller populations.

Annual Summary	Cases	%	Rate*
2025	310	-	2.8
Sex			
Male	192	62%	
Female	118	38%	
Unknown	0	0%	
Age Group			
<20	0	0%	
20-29	4	1%	
30-39	22	7%	
40-49	31	10%	
50-59	73	24%	
60-69	83	27%	
70-79	66	21%	
80-84	11	4%	
85+	20	6%	
Unknown	0	0%	
Race			Rate**
White	194	62%	2.5
Black/African American	100	32%	4.1
Asian	1	1%	0.2
American Indian/Alaskan Native	3	1%	1.7
Other	7	2%	-
Unknown	5	2%	-
Hispanic Ethnicity			
Yes	7	2%	0.5
No	222	72%	2.3
Unknown	81	26%	-
Disease Severity			
Hospitalized	306	98%	
Died	28	9%	

*Incidence rate calculated per 100,000 North Carolina residents for 2025

** Incidence rate for race and ethnicity calculated using 2024 population data since 2025 data is currently unavailable

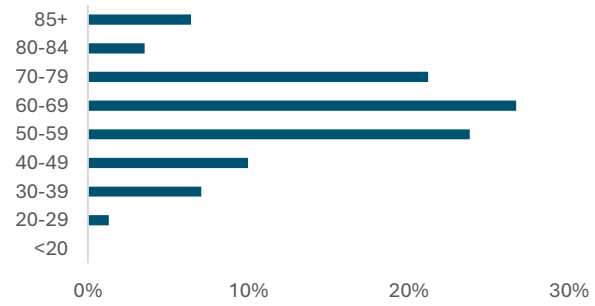
Annual Summary Key Points

- 310 cases of Legionellosis were reported in North Carolina in 2025, which is a 54% increase in cases compared to the 201 cases reported in 2024.
- All 310 cases were Legionnaires' Disease. There were no Pontiac fever or extrapulmonary cases reported.
- Most cases occurred in people 50 years of age and older. Underlying medical conditions and a weakened immune system are more common among people of this age group, which increases the risk of developing LD.
- Although Black or African American North Carolinians only made up 32% of cases, they had the highest incidence rate at 4.1 per 100,000.
- Incidence rates were also elevated in non-Hispanic North Carolinians at 2.3 per 100,000.
- The severity of illness reported in NC mirrors national trends with the vast majority of reported cases being hospitalized and 9% of cases resulting in death. Among cases who died, 78% were 60 years of age and above.

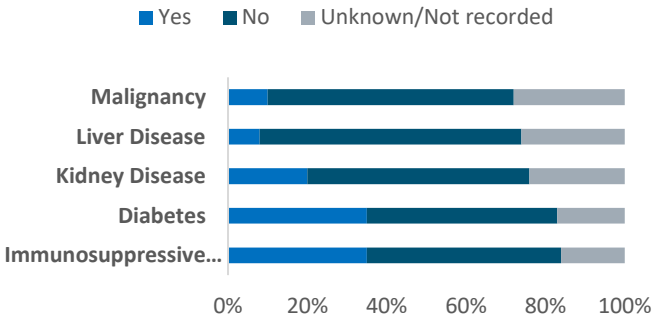
Legionellosis

NC 2025 Legionellosis cases by age group

The age group most affected in North Carolina reflects the national trend: adults ages 50 years and older made up 81% of cases. The age range with most reported cases in North Carolina in 2025 was 60 to 69 year-olds (27%). There were no cases reported in individuals under 20 years of age.



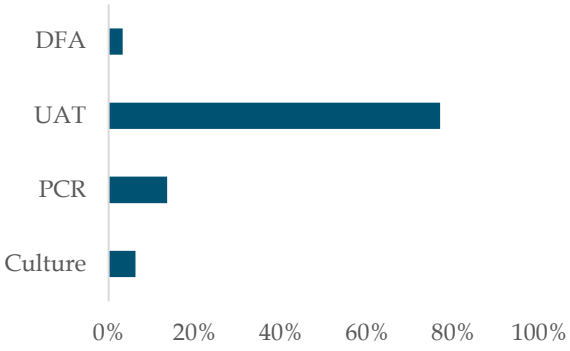
NC 2025 Legionellosis cases with underlying medical condition(s)



Most cases reported having one or more underlying medical conditions. The most frequently reported underlying medical conditions were immunosuppressive conditions and diabetes both at 35% followed by kidney disease at 20%. The graph shows underlying conditions that are not mutually exclusive.

NC 2025 Legionellosis cases by type of diagnostic test

The graph represents diagnostic testing for LD and may represent cases with multiple test types. UAT was the most common test (77%) and direct fluorescence antibody (DFA) was the least frequent (3%). While the CDC recommends *Legionella* UAT paired with lower respiratory specimen testing by culture or molecular methods for diagnosis of LD, only about 14% of cases had polymerase chain reaction (PCR) result and 6% were tested by culture from lower respiratory specimen.

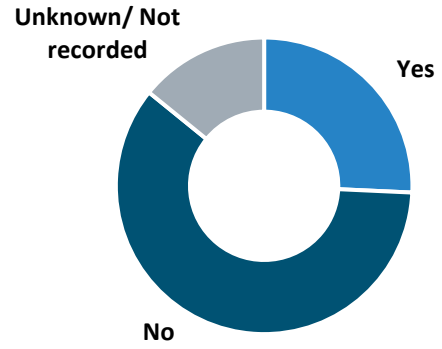


Legionellosis

Legionellosis cases by exposure type

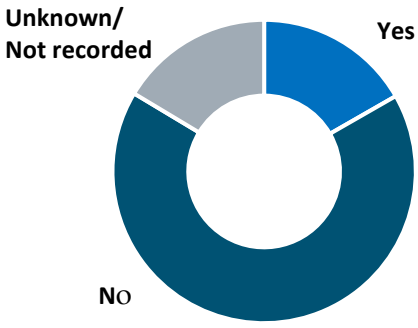
NC 2025 Legionellosis cases with history of travel

Travel history helps determine whether the infection may have been acquired locally or during travel, thus helping to narrow down the potential source of exposure. About 26% of the 2025 cases had a history of travel during their period of likely infection. 60% had no known travel history. The remaining 14% had unknown or missing information about their travel.



Health care facilities often have large, complex water systems and devices that produce small droplets of water. They also serve patients who have risk factors for Legionnaires' disease. Therefore, it is important to consider a patient's exposure to health care settings when investigating cases of LD. The charts below summarize health care exposures reported in 2025; however, the findings may be limited due to incomplete exposure history from patients.

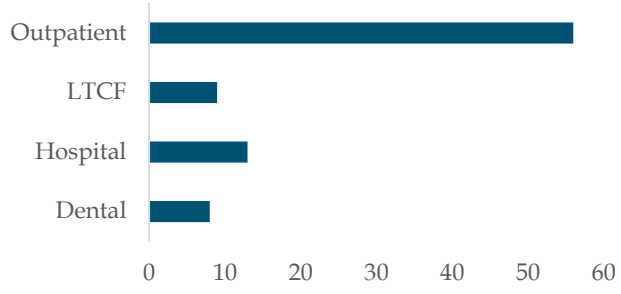
NC 2025 Legionellosis cases by health care exposure



In 2025, 17% of the legionellosis cases reported potential health care exposures. Exposures included dental work or oral surgery, hospitalization, long term care facility stays, and/or outpatient facility visits. 67% did not report health care exposure while the remaining 16% cases had unknown or unrecorded health care exposures. Cases with health care exposures are also likely to have other possible sources of exposures.

NC 2025 Legionellosis cases by type of health care exposure

Of the 17% of the legionellosis case that reported health care exposures during their period of interest, outpatient visits were the most recorded health care exposure reported.



Legionellosis

Water Management Programs and *Legionella* Control

Since *Legionella* bacteria can grow and spread in human-made environmental settings, the control of *Legionella* in water systems in buildings is an effective strategy for the Legionnaires' disease prevention. Buildings and devices that are at increased risk for *Legionella* growth and spread should have a water management plan according to industry standards. An effective water management program (WMP) can reduce the risk for *Legionella* growth and spread within water systems and devices as it helps to identify hazardous conditions and outline steps that minimize the health impact of waterborne pathogens.

Hospitals, long-term care facilities (LTCFs), buildings that house or serve vulnerable population, large buildings with complex water systems should have a WMP for their entire building. The Centers for Medicare & Medicaid Services (CMS) also require hospitals, critical access hospitals and LTCFs to develop and adhere to ASHRAE-compliant WMPs.

Other devices such as cooling towers, decorative fountains, hot tubs and centrally installed misters may also need WMPs that are specific to these devices. They should use the manufacturer's instructions regarding cleaning, disinfecting and maintenance.

Additional Resources:

CDC - About Legionnaires' Disease
CDC - Legionellosis Surveillance and Trends
CDC - How *Legionella* Affects Building Water Systems and People
CDC - Water Management Programs
CDC - Controlling *Legionella* in Cooling Towers
NC DPH Legionellosis Facts
How to Prevent Legionellosis at Home – English
How to Prevent Legionellosis at Home - Spanish
Occupational Safety and Health Administration Legionellosis Information