

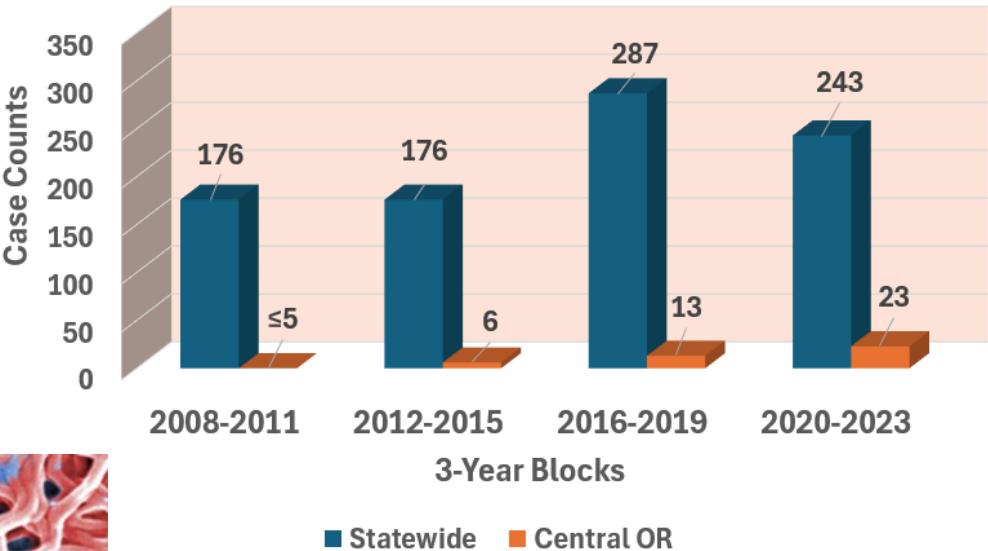
Central Oregon Public Health Quarterly

Communicable Disease Update for Crook, Deschutes, and Jefferson Counties
Third Quarter Report, 2024

24/7 Communicable Disease reporting lines:	Crook County: 541-447-5165	Deschutes County: 541-322-7418	Jefferson County: 541-475-4456
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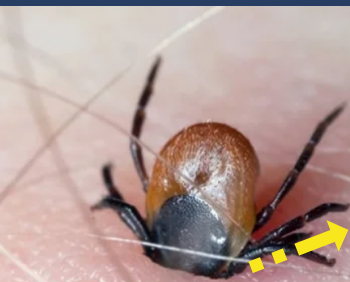
Lyme Disease Spotlight

Lyme Disease Statewide (OR) & Central OR (2008-2023)

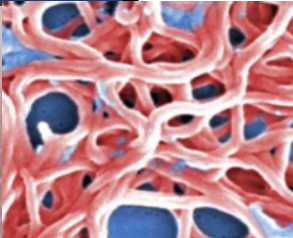


Adult western black-legged tick (female); *Ixodes pacificus* (present primarily in Western OR & along Columbia River at lower elevations)

- Lyme Disease (LD):** a tick-borne disease is caused by species of *Borrelia* bacteria transmitted by blood-feeding ticks in the genus *Ixodes*
- Most common disease spread by ticks in the Northern Hemisphere [Read more [here](#)]



Tick with chelicerae sticking in human skin (image: Tomasz Klejdysz)



Borrelia burgdoferi (Gram-negative, anaerobic bacteria); Image: CDC

Borrelia bacteria in blood with red blood cells

Trends

- A noted increase in Lyme disease (LD) cases occurred in the 2016-2019 timeframe (as noted above in both statewide & regional trends)
- While regional LD counts continued on an upward trend during the most recent time period examined (2020-23), statewide counts were somewhat lower than the previous time-period (see above)

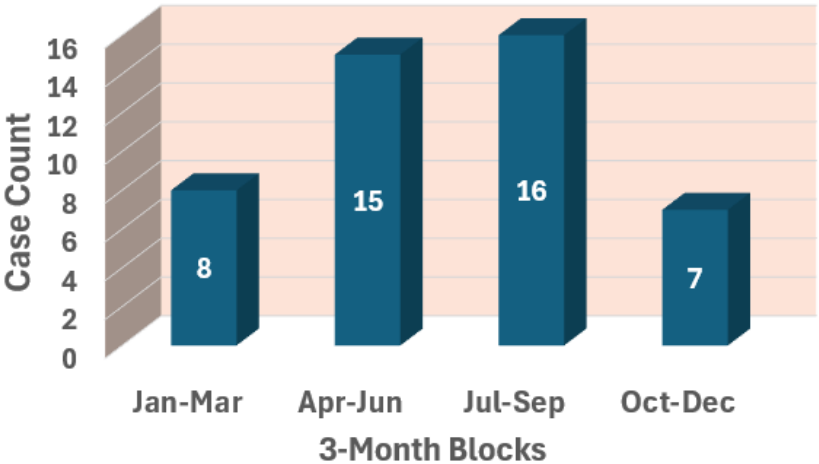


Seasonality

- The most common time of year for LD diagnoses in Central OR was during the summer months (which concurs with overall statewide trends, read more [here](#))
- Why more Lyme disease in the summer?
 - People spend more time outdoors (increasing opportunities for tick exposure)
 - Ticks more active when temps >freezing
 - Nymph ticks (main transmitters of LD) most active during spring/summer



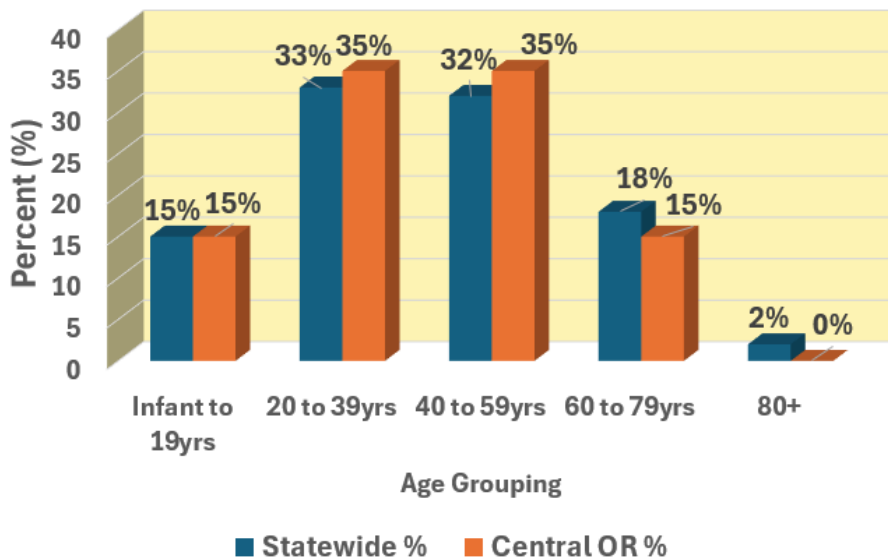
Lyme Disease Reported in Central OR by Seasonal Groupings (2008-2023)



Lyme Disease: Central OR prevalence across Selected Sociodemographic & Clinical Factors



Lyme Disease by Age, Statewide & Central OR (2008-2023)

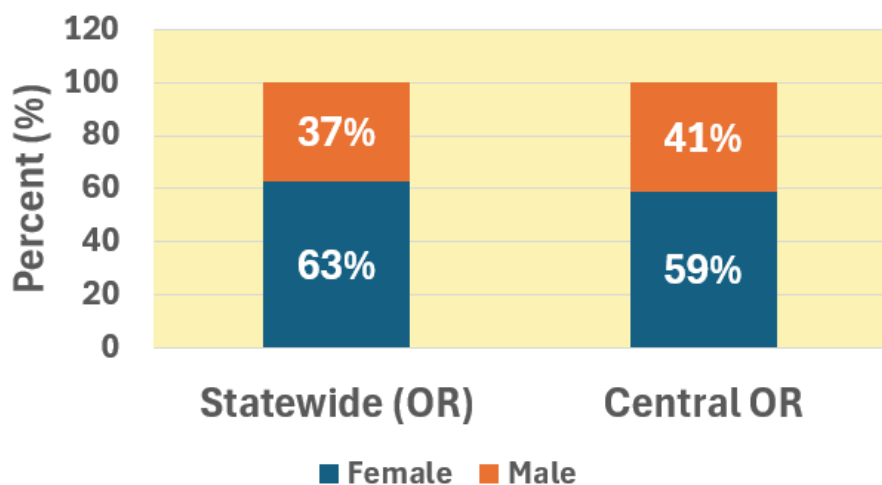


Age

- In both Central OR & the state (OR), the age of Lyme disease (LD) diagnosis follows somewhat of a normal curve—with the majority of cases diagnosed among adults (**20-59yrs**)
- Nationally, diagnosed LD cases follow more of a bimodal distribution with highest case counts in the U.S. among those **5-9yrs** (thought to be driven by interactions with tick habitats & age-related developmental susceptibility) & **50-60yr olds** (thought to be primarily driven by probability of interacting with tick habitats & overall changing population structure in the US); Read more in a recent article [here](#).



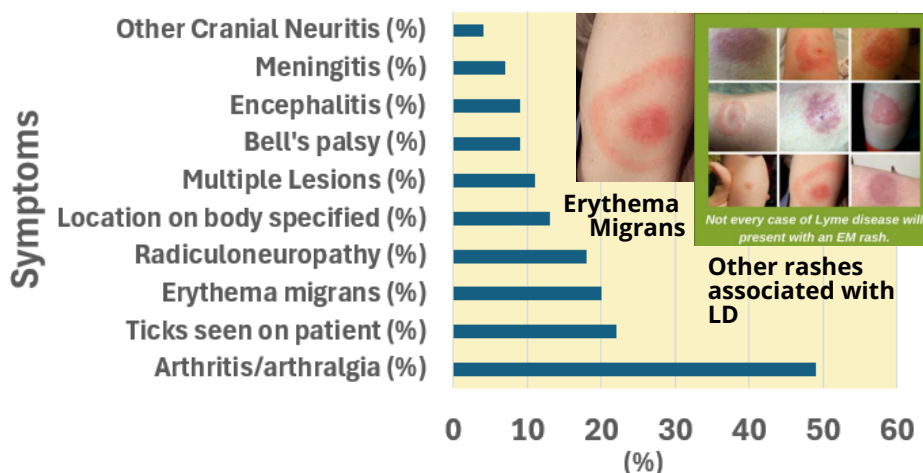
Lyme Disease by Sex, Statewide & Central OR (2008-2023)



Sex

- A slightly higher percent of females were diagnosed statewide with LD compared to our region (2008-2023)
- Across the US, a slightly higher (%) of males were diagnosed with LD (as of 2022); Read more [here](#)
- Noted sex-based differences in LD:
 - **Rash size:** Men tend to have larger rashes (~1in. larger vs. women)
 - **Diagnostic tests:** Men are more likely to have a + 2-tier diagnostic blood test
 - **Symptom Severity:** Women more likely to be misdiagnosed
 - **Diagnostic delays:** Women generally have longer diagnostic delays
 - **Tick-borne coinfections:** Women generally have more tick-borne coinfections
 - **Persistent LD:** Women more likely to develop persistent LD; Read more [here](#).

Clinical Symptoms, Lyme Disease Diagnosis in Central OR (2008-2023)



Clinical Symptoms

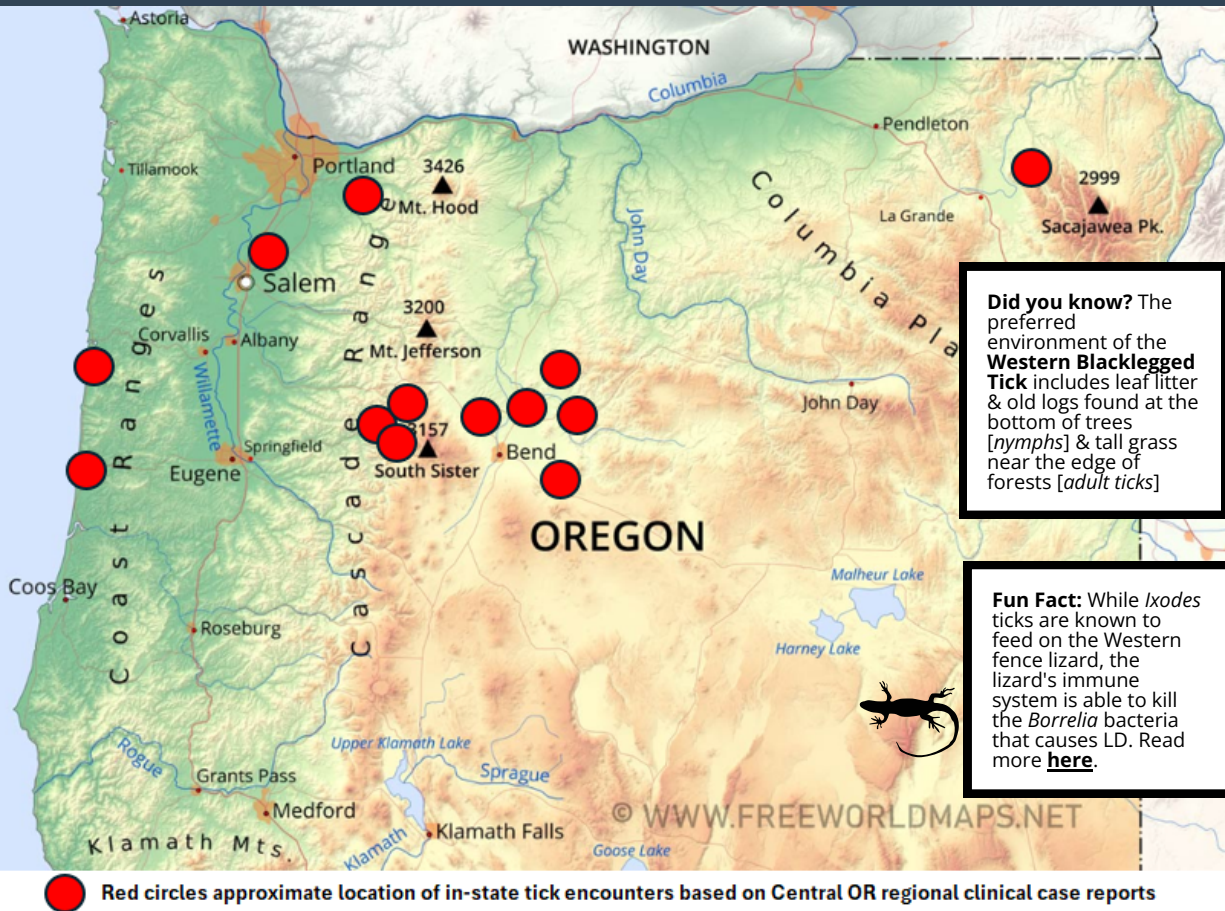
- In Central OR, the most common symptom associated with LD diagnosis was arthritis/arthralgia (~50% of cases), followed by the observance of a tick on the patient (22%), Erythema migrans (expanding rash often seen in early stages of LD) (20%), and Radiculoneuropathy (aka 'pinched nerve') (18%)
- While rashes, fever, muscle aches & pains generally occur earlier in LD progression (**stages 1 & 2**; days-weeks following exposure), **stage 3** ['disseminated disease'] (generally occurring without treatment), can occur many months post-exposure & is most often characterized by arthritis (in large joints, e.g. knees); Read more [here](#).

*Note: ~90% of Central OR LD cases were of non-Hispanic white race/ethnicity

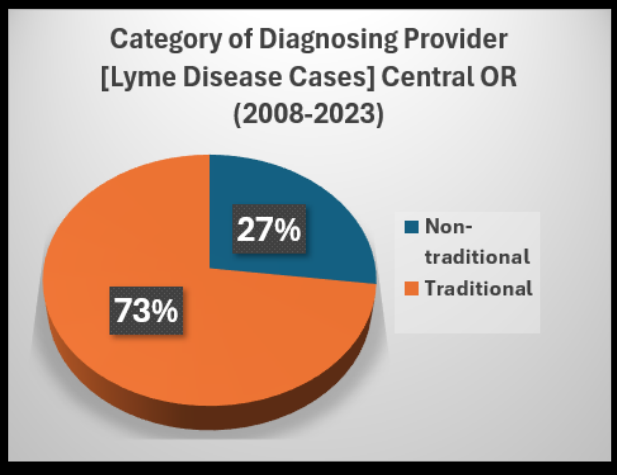
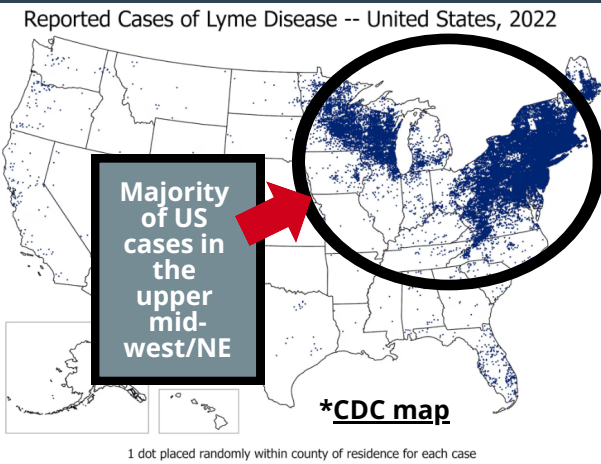
Lyme Disease: Tick Hot-Spots & Provider Info



Map of Suspected Tick Encounters



- After reviewing Central OR diagnosed LD case reports from (2008-2023), the following 'hot-spots' (marked in red circles on left) were identified as suspected areas of tick encounters
- As would be expected, cases often referred to hiking and/or camping areas (both locally in Central OR & also outside of the region)
- **The most common risk factor** for tick exposures reported by LD cases in our region was travel outside home area (36%)
- While rodents & deer remain important tick hosts, *Ixodes* ticks also feed on lizards



Diagnosing Providers

- While the majority of LD cases in Central OR were diagnosed in traditional health care settings, ~a quarter of cases were diagnosed in non-traditional settings (e.g. naturopathic; chiropractic clinics)
- For a recent discussion on current testing/diagnostic protocols, see [here](#).

Lyme Disease Quick Facts

Vectors

- In OR (& the Western US), the primary vector for LD are *Ixodes* *Pacificus* [hard] ticks
- Ticks transmit the bacteria *B burgdorferi* via complex lifecycles {feeding off rats, lizards, deer, & humans}
- In OR, risk for LD is considered highest in the SW region of the state, although *Ixodes* have also been found around the mouth of the Deschutes River



Spread

- LD is acquired via tick bite {probability of transmission directly correlated with duration of tick attachment}
- **Note:** Studies suggest attachment for at least 24-48hrs is required for transmission to occur



Diagnosis & Tx

- Diagnosis of LD is difficult due to the association of an array of symptoms (e.g. fever, severe fatigue, achiness) often found with many other illnesses
 - [Note: early stage diagnosis is generally clinical; later stages generally facilitated by lab test results]
- **Warning:** Definitive diagnoses are difficult with **false positive & false negative** test results common
- If diagnosis is suspected (by EM presence or other symptoms), serology/cultures should be taken prior to Tx
 - **Stage I LD:** amoxicillin with or without probenecid; doxycycline; tetracycline (3-4wks)
 - **Stage II or III LD:** 2-3wks of intravenous antibiotics may be indicated



*Read more in OR LD investigative guidelines [here](#)

Controlling Exposure

- When outdoors (hiking, camping etc), wear protective clothing that's light colored, long-sleeved shirts, & hats
- Consider using DEET or other permethrin repellents [Note: use caution when applying directly to skin of children]
- Remove excess leaves, brush, tall grasses from lawns
- Hike within the center of trails to avoid brush contact
- Sleep in screened tents when camping
- **Hunters:** be aware of tick infestations on mammals (e.g. deer) when handling carcasses
- Remove attached ticks intact; **DO NOT** leave embedded head parts; Use direct action with tweezers



OREGON CASE REPORTING; Health care providers & clinical laboratories are required by law to report cases & suspected cases of Lyme Disease to local health departments within **one** working day of identification. Cases are subject to restriction on school & day-care attendance, food handling, & patient care for duration of any diarrhea &/or vomiting. Investigative guidelines can be found [here](#).