

# Central Oregon Public Health Quarterly

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

24/7 Communicable  
Disease reporting lines:

Crook  
County:  
541-447-5165

Deschutes  
County:  
541-322-7418

Jefferson  
County:  
541-475-4456

## Communicable Disease Case Counts and Rates: Year in Review

Reportable Disease or Condition	2023				2018-2022			
	Oregon		Central Oregon		Oregon		Central Oregon	
	Case count	Rate per 100,000 population	Case count	Rate per 100,000 population	Average annual case count	5-year rate per 100,000 population	Average annual case count	5-year rate per 100,000 population
Chlamydia	15,307	361.1	638	244.5	17,067.6	403.7	795.4	328.9
Hepatitis C (chronic)	2,913	68.7	140	53.7	4,301.2	101.7	215.6	89.1
Campylobacteriosis	1,108	26.1	114	43.7	979.4	23.2	108.2	44.7
Gonorrhea	4,946	116.7	95	36.4	6,030.2	142.6	156.2	64.6
Syphilis	2,081	49.1	86	33.0	1,597.4	37.8	32.2	13.3
E. coli (ETEC)*	166	3.9	56	21.5	66.4	1.6	28.8	11.9
Salmonella (non-typhoidal)	567	13.4	51	19.5	464.4	11.0	31.6	13.1
E. coli (STEC)*	355	8.4	45	17.2	287.4	6.8	36.6	15.1
Giardiasis	400	9.4	37	14.2	307.2	7.3	37.6	15.5
Cryptococcus	59	1.4	17	6.5	56.8	1.3	10.6	4.4
Cryptosporidium	151	3.6	16	6.1	174.6	4.1	15.0	6.2
Shigella	326	7.7	16	6.1	191.4	4.5	7.0	2.9
Yersinia	69	1.6	16	6.1	46.0	1.1	8.0	3.3
CRE*	210	5.0	14	5.4	225.8	5.3	12.6	5.2
Lead poisoning	364	8.6	13	5.0	323.6	7.7	7.0	2.9
Hep B chronic	400	9.4	12	4.6	351.2	8.3	5.6	2.3
Vibrio	52	1.2	12	4.6	43.0	1.0	5.8	2.4
Coccidioidomycosis	31	0.7	9	3.4	31.6	0.7	5.0	2.1
HIV	244	5.8	8	3.1	212.2	5.0	5.2	2.2
Cyclosporiasis	10	0.2	7	2.7	5.8	0.1	3.8	1.6
Legionella	67	1.6	5	1.9	62.6	1.5	4.0	1.7
Lyme Disease	66	1.6	5	1.9	66.6	1.6	5.0	2.1

Table above summarizes 2023 case counts for selected reportable communicable diseases (CDs) with Central OR regional case counts (Crook; Deschutes; Jefferson Co) of 5+, listed in order of prevalence with comparisons to previous 5 years. Rates calculated using the *American Community Survey* (ACS) population estimates. All data current as of April 23, 2024. **Note:** Due to known delays from a small number of testing sites in Central OR, numbers above may be subject to later correction.

\* E. coli=Escherichia coli bacteria; STEC=Shiga-toxin producing E. coli; ETEC=Enterotoxigenic E. coli; CRE=Carbapenem-resistant Enterobacteriaceae



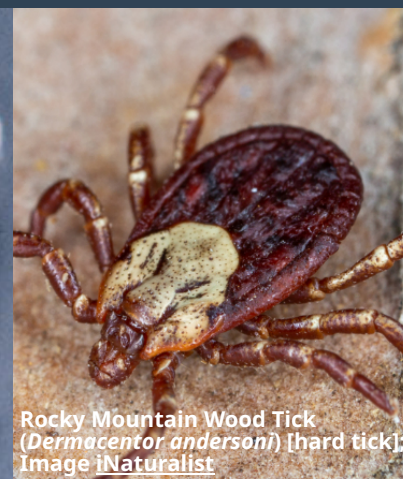
## 2023 Central OR Year-in-Review Highlights

- 2023 Top 3 Central OR CDs
  - 1) chlamydia; 2) hepatitis C (chronic); 3) campylobacteriosis
- Rate Trends in Central OR [2023 vs. (2018-2022)]
  - Elevated Rates:** [15/22 (68%)] of CDs had elevated rates in 2023 vs. prior 5-years; With particularly elevated rate increases noted for syphilis, shigella & HepB chronic (2+ fold increases)
  - Diminished Rates:** [7/22 (32%)] of CDs had lower rates in 2023 vs. prior 5-years; With particularly diminished rates for gonorrhea (~1.8 fold decrease)

- 2023 Central OR vs. Oregon State Rates
  - In 2023, 9/22 (41%) of CDs in Central OR (case counts  $\geq 5$ ) had lower rates compared to the overall state rates, with particularly lower rates for gonorrhea & chlamydia
  - Among the 13 CDs with higher rates in Central OR in 2023; those with a >4-fold increase included: E. coli (ETEC); cryptococcus; coccidioidomycosis; cyclosporiasis



# Disease Spotlight: Tick-Borne Diseases in Central OR



Lyme Disease

Borrelia hermsii

Colorado Tick Fever

Tularemia

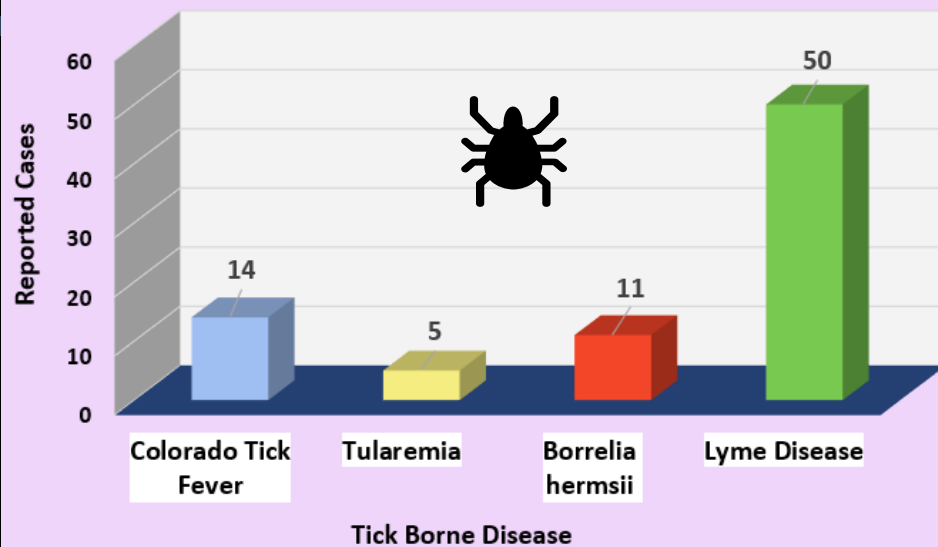


## Overview

- 4 of the most commonly diagnosed tick-borne diseases occurring in Central OR include: Lyme Disease (LD); Borrelia hermsii; Colorado Tick Fever (CTF); & Tularemia (shown with commonly associated tick vectors above)
- While tick-borne diseases are generally rare in Central OR, they have been increasing over time

\*Read about the impact of climate change on ticks [here](#).

Case Distribution Across Selected Tick Borne Diseases Diagnosed in Central OR, 2008-2023



## Tick-Borne Diseases in Central OR: Increasing Over Time

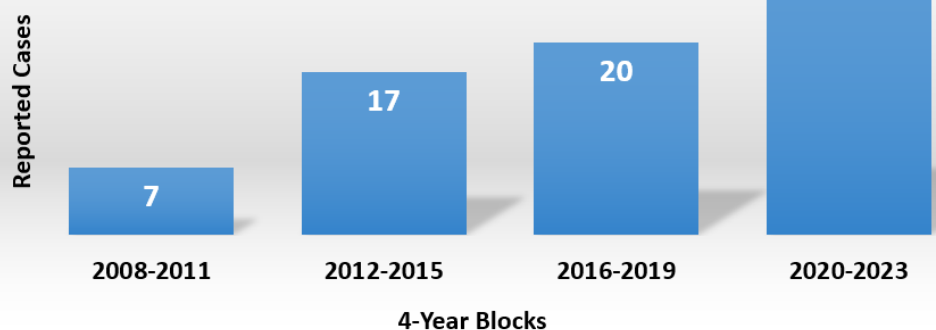
- Compared to the 2008-2011 time period, the number of tick-borne diseases reported in Central OR in recent years (2020-2023) have increased over 4-fold (increased 2-fold in US overall from 1992-2016)
- Why are tick-borne diseases increasing?
  - growing tick populations
  - rising heat & humidity
  - improved tracking



Tips on preventing tick-borne diseases can be found [here](#).

Tick-Borne Disease Cases\* Reported in Central OR (2008-2023)

\*Inclusive of: Lyme Disease; Borrelia hermsii; Colorado Tick Fever; & Tularemia



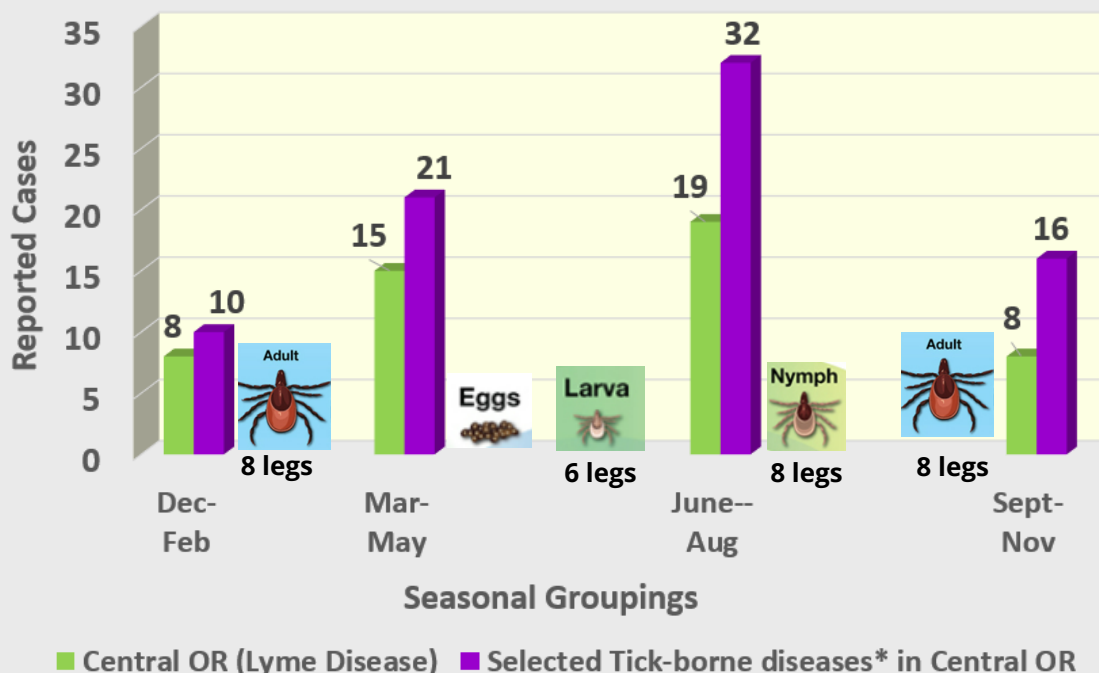
# Tick-Borne Diseases in Central OR: Seasonality & Selected Sociodemographic Factors

## Seasonal Trends

- Seasonality is an important consideration in tick-borne diseases
- Most ticks lay eggs early-late spring
- After hatching, ticks need blood meals at every stage to mature/survive (2-3yr lifespan)
- While all tick life stages are thought to feed on a variety of hosts, nymphs (maturing in the second summer of life), are thought to transmit most disease. Read more [here](#).

\*Read about how increasingly warm spring temps & humidity can drive the tick lifecycle [here](#).

Tick-Borne Disease Cases by Seasonal Groupings, Central OR (2008-2023)



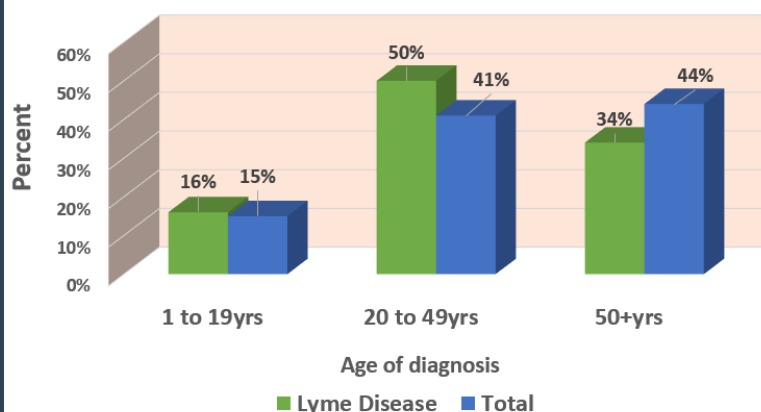
\*Inclusive of Lyme disease; Borrelia Hermsii; Colorado Tick Fever; & Tularemia

## Tick-Borne Diseases by Selected Sociodemographic Factors

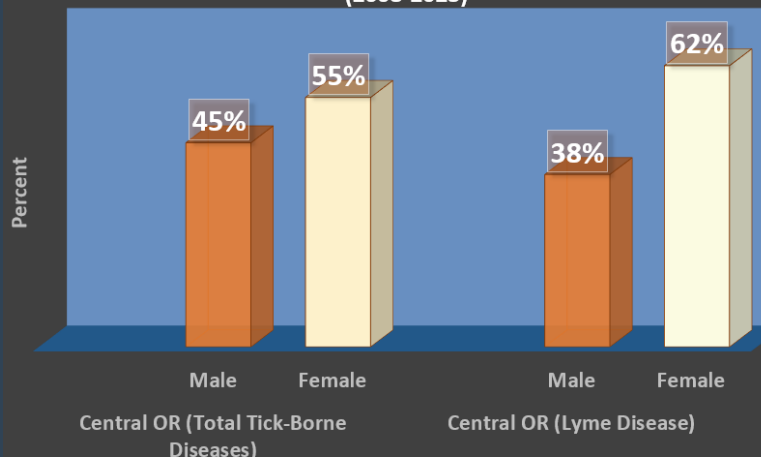
- Among individuals diagnosed with any tick-borne disease in Central OR, the highest proportion of individuals affected tended to be in older age groups (50+yrs; female; & of non-Hispanic (NH) white race/ethnicity (88%))
- When considering only individuals diagnosed with Lyme disease (LD), a higher proportion of those diagnosed tended to be younger (20-49yrs), female, & NH white (84%)
- While small numbers precluded further demographic analyses across other tick-borne disease groups (other than LD), it is interesting to note that patterns in Central OR differ from nationwide trends in LD, as across the US, males are disproportionately impacted & a bimodal disease distribution is consistently reported, with peaks among children (5-9yrs) & older adults (55-60yrs)
- According to recent CDC data, the average age of patient age at time of illness (for LD) has been increasing over time (shifting from late 30s to 50s), likely due to the changing population structure of the US & increased clinically apparent illness at older ages

\*Read more on changing US Lyme Disease trends [here](#).

Tick-Borne Disease Cases by Selected Age Groupings, Central OR (2008-2023)



TICK-BORNE DISEASES BY SEX, CENTRAL OR (2008-2023)

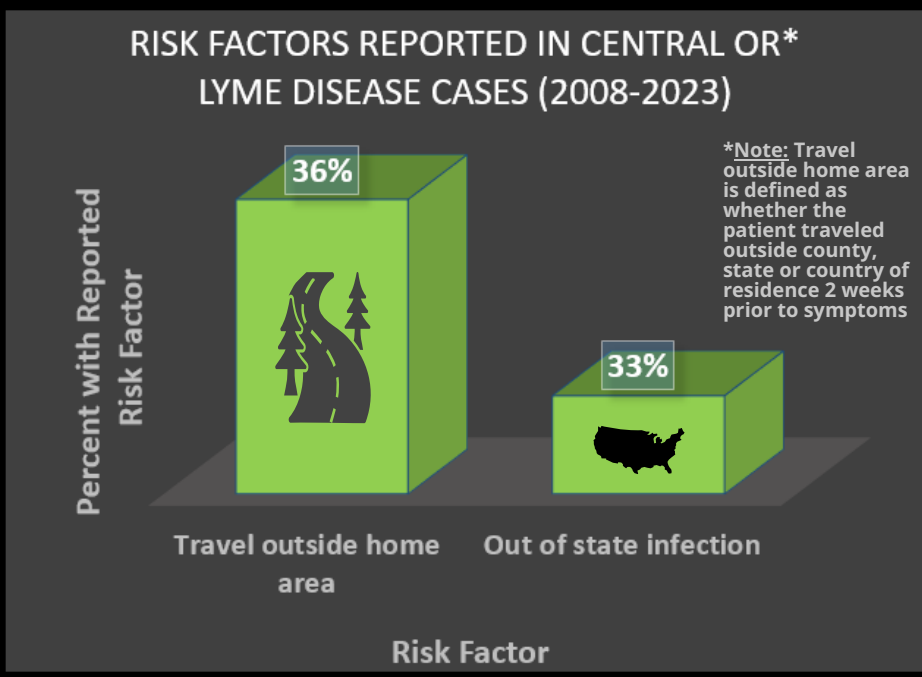




# Commonly Reported Risk Factors for Tick-Borne Diseases\*\* in Central OR

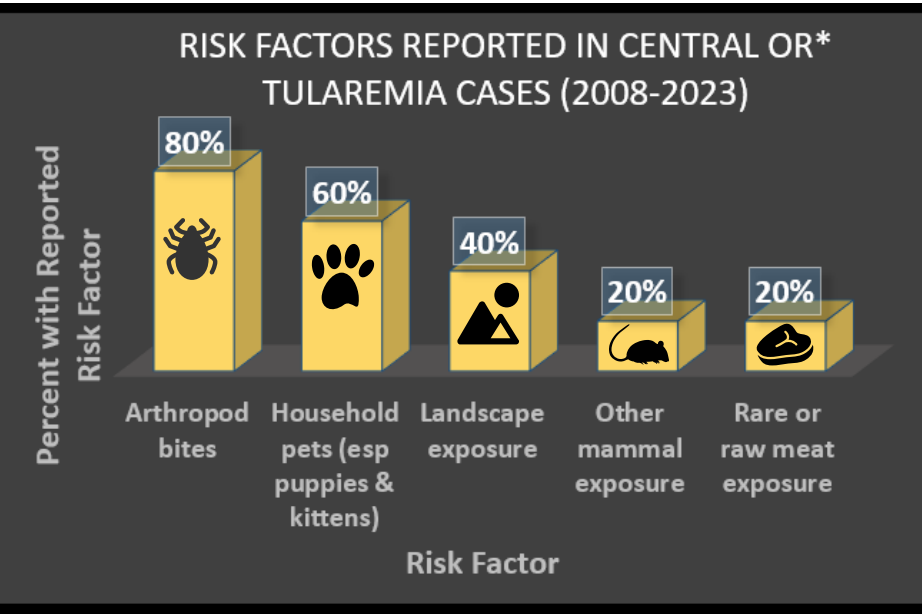
## Lyme Disease (LD):

- In Central OR, the most common risk factor cited among reported cases (over the past 15yrs) included travel outside the immediate home area followed closely by out of state infection
  - While data are extremely limited in OR (regarding the presence of LD vector ticks & the bacteria *B. burgdorferi*), OR investigative guidelines report the greatest risk appears to be in the SW region of the state; namely, Coos, Curry, Josephine, & Jackson counties
  - For travel outside OR, highest incidence is noted in the NE (notably New England), Wisconsin, Minnesota, & California
- \*Read more [here](#).



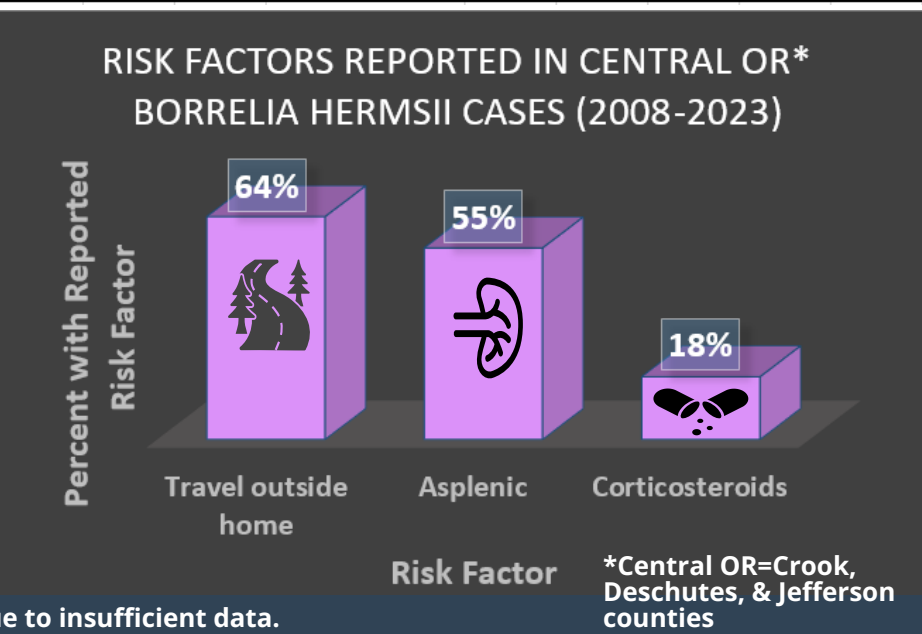
## Tularemia:

- While there are multiple routes of tularemia infection (e.g. direct contact; foodborne; airborne), the most common risk factor noted in tularemia cases in Central OR is arthropod bites (similar to overall trends in the US, where the majority of cases are associated with tick exposures)
  - Other common risk factors included household pets, landscape exposures, & less frequently other mammals & raw meat
  - The tick most commonly associated with Tularemia in Central OR would be the Rocky Mountain wood tick (generally preferring rodents to humans)
- \*Read more [here](#).



## Borrelia Hermsii:

- Similar to LD, the most common risk factor for Borrelia Hermsii is travel outside home area. The vector for *B. hermsii* (*O. hermsi*) is a 'nesting' soft tick (living in diurnal rodent nests) & typically found in remote cabins (>1500ft elevation) ..Unlike ticks commonly associated with LD, *O. hermsi* does not stay for long on hosts (with people often not knowing they were bitten)
  - Another risk factor associated with B. Hermsii includes being asplenic (without a spleen) (~55% of cases reported) ..and to a lesser extent, corticosteroid exposure (18%)
- \*Read more [here](#).



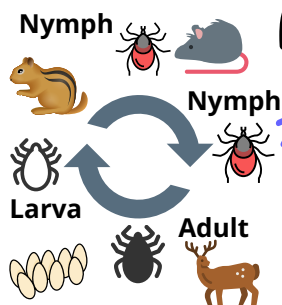
\*\*Note: Risk factor graphics for CTF not presented due to insufficient data.



# Tick-Borne Diseases in Central OR: Symptoms & Treatment at a Glance



## Lyme Disease



- Most cases of Lyme disease reported May-Aug
- Majority of cases thought to be transmitted by nymphal deer ticks
- Nymphs commonly found on forest floor in leaf litter & low lying vegetation

\*Read more on LD tick lifecycles [here](#).

## Symptoms

- 3-30 days post tick bite**
- Fever
  - Chills
  - Headache/Fatigue
  - Swollen lymph nodes
  - ~7 days post-bite Erythema migrans rash may occur (~70-80% of infected persons)
- 30+ days**
- Severe headaches; neck stiffness; arthritis; nerve pain; shooting pains; facial palsy

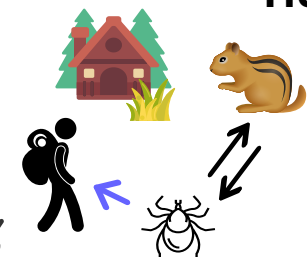
\*Read more on LD symptoms [here](#).

## Treatment

- Antibiotics are the only proven treatment for Lyme disease
- Prophylactic antibiotics may be prescribed when:
  - biting tick is known to be a deer tick
  - you recently visited an area where Lyme disease is common
  - tick was attached 36+ hrs

\*LD Tx strategies [here](#).

## Borrelia hermsii (aka Relapsing Tick Fever)



- Most cases in Pacific NW caused by soft tick, *O. hermsi*, associated with rodents found in coniferous forests at higher elevations (1500-1800ft)

\*Read more on *O. hermsi* & preferred habitats [here](#)

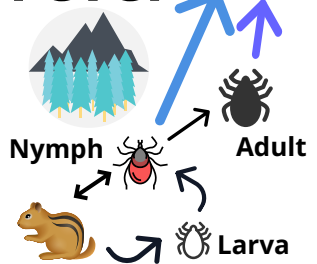
- 7 days post tick bite**
- High fever (e.g. 103F)
  - Headache/Fatigue/Dizziness
  - Muscle/Joint aches/Nausea
- Recurring Symptoms**
- Fever Pattern ('Biphasic'): Fever occurring for ~3days followed by 7 days no fever, then fever another 3 days ... (without antibiotic, process can continue)

\*Read more on B. Hermsii symptoms [here](#).

- Antibiotics recommended, specifically **doxycycline** 100mg 2X/day for 7 days
- **Note:** If doxycycline is contraindicated, use **azithromycin** 500mg for 10 days
- Following initiation of antibiotic therapy, all patients should be observed for first 4 hrs of treatment for **Jarisch-Herxheimer reaction**

\*B. Hermsii Tx strategies [here](#).

## Colorado Tick Fever



- aka: 'Mountain {Tick} Fever'
- Virus infects small rodents which can infect wood ticks (e.g. *D. andersoni*) who bite these animals ...who can then pass virus to humans
- Wood ticks found in shrublands & lightly wooded areas (4-10,000ft above sea level)

\*Read more CTF ecology [here](#).

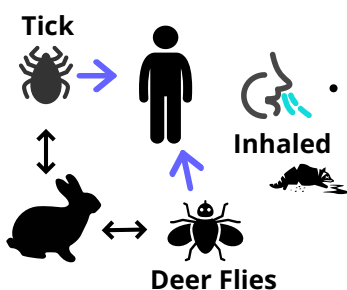
- 1-14 days post tick bite**
- Fever/Chills
  - Headache/Fatigue/Dizziness
  - Muscle/Joint & body aches
  - Sore throat
  - Nausea/Vomiting
  - Skin rash
- Recurring Symptoms**
- 'Biphasic' Fever Pattern: Fever occurring for ~1-2 days followed by 2 days no fever, then fever another ~1-2 days ...symptoms generally disappear after a few days or weeks

\*Read more on CTF symptoms [here](#).

- CTF is caused by a **viral infection**, thus antibiotics not effective
- Rest, fluids, OTC pain meds may relieve symptoms
- **CAUTION:** In rare instances, complications may include:
  - Meningitis
  - Encephalitis
  - Repeated bleed episodes

\*CTF Tx strategies [here](#).

## Tularemia



- aka: 'rabbit fever'
- generally a rural disease (reported in all US states except Hawaii)
- *Bacteria F. tularensis* infects many animals (esp. rabbits); ticks & flies feeding on these animals can infect humans

\*Read more on how people can be infected by tularemia & symptoms [here](#).

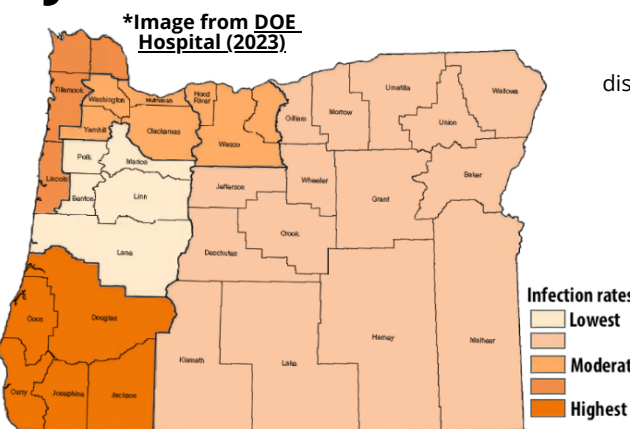
- 3-5 days post tick bite**
- **Tick/inset borne** Tularemia (several weeks)
    - Skin ulcers/Swollen/Painful lymph glands
    - Inflamed eyes/Sore throat
    - Mouth sores
    - Diarrhea
    - Pneumonia
  - **Airborne** Tularemia
    - Abrupt onset of fever/chills/headache/joint pain

- Antibiotics to treat tularemia include:
  - streptomycin
  - gentamicin
  - doxycycline
  - ciprofloxacin
- Treatment generally lasts 10-21 days (depending on illness stage & medication used)
- **Note:** While symptoms may last several weeks, most patients recover

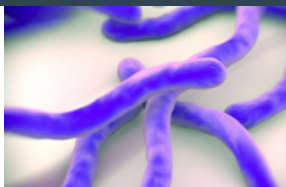
\*Tularemia Tx strategies [here](#).

# Tick-Borne Diseases: Oregon/US Geographic Distribution & Current OHA Reporting Guidelines

## Lyme Disease



*Borrelia burgdorferi* (one of the 4 main species of bacteria that cause Lyme disease); Image: Mayo Clinic



- In OR, LD infection rates are highest West of the Cascades, particularly in SW OR (although incidence throughout state remains low at ~40-50 cases/yr)
- In Central OR, LD tick vectors ('hard-ticks') have mainly been found around the mouth of the Deschutes river

## OHA Reporting Guidelines

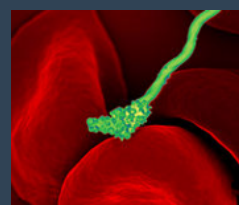
- Oregon health care providers & clinical laboratories are required by law to report cases & suspected cases of tick-borne disease to local health depts within 1 working day of identification
- Oregon investigative guidelines for Lyme Disease can be found [here](#)

## Borrelia hermsii



- B. hermsii* is most commonly found in the Western US & can be transferred by a variety of 'soft-bodied' ticks--who prefer to feed at night vs 'hard-ticks' which prefer to feed during the daytime
- O. hermsii* (the tick vector responsible for most *B. hermsii* cases in the US) prefers to live in coniferous forests in higher altitude areas (1,500-1,800ft)
- In the Pacific NW, the highest number of cases are found in ID, WA, CA (Central Valley) ...although, there have been a few cases in OR, particularly in the Central & N. Central parts of the state

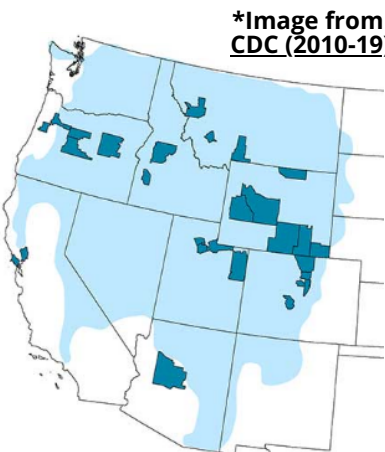
Read more [here](#).



*Borrelia hermsii* spirochete bacterium (causative agent of relapsing tick fever on blood cells) Image: NIAID

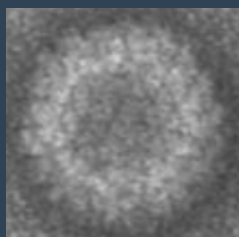
- Oregon investigative guidelines for *Borrelia hermsii* & other soft tick relapsing fevers can be found [here](#)

## Colorado Tick Fever (CTF)



- Dermacentor andersoni* tick (aka 'Rocky Mountain Wood' ticks ['hard-ticks']) are the primary vectors responsible for CTF ...found primary in the western US & western Canada at higher altitude areas (4,000-10,000ft)
- In the US, CTF is rare, with 59 CTF cases diagnosed (2010-2019); Note: Image to left depicts geographic distribution of *D. andersoni* (light blue) & counties with reported cases (dark green)
- Most cases reported in OR have occurred along the central belt of the state
- In Central OR (2008-23), both Deschutes & Jefferson counties have reported cases (with no cases reported from Crook county)

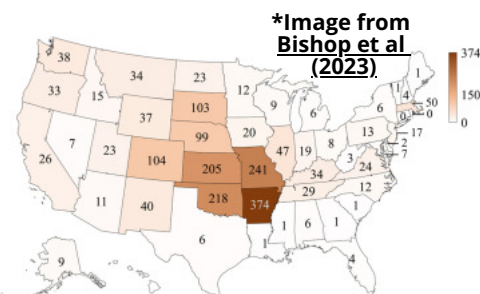
Read more [here](#).



Colorado tick fever virus; Image: Attoui et al., 2005

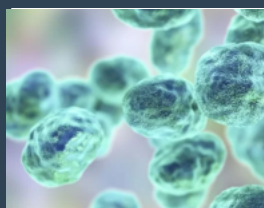
- While OHA does not have CTF-specific investigative guidelines, the CDC provides a helpful tick-borne illness questionnaire [here](#)

## Tularemia



- The most common vectors in the US are various species of 'hard-ticks' followed by biting flies & mosquitos
- Incidence of tularemia in the US has been increasing over time, with 0.04 cases per 100,000PY (2001-2010), to 0.07 cases per 100,000PY (2011-2019) [total of 1,984 cases in most recent period] (source below)
- Cases in OR have been variable in recent years with spikes in 2011, 2015, 2018, & 2023

Read more [here](#).



Bacteria *Francisella tularensis*; Gram-negative pleomorphic bacteria; Image: Kateryna Kon

- Oregon investigative guidelines for tularemia can be found [here](#)