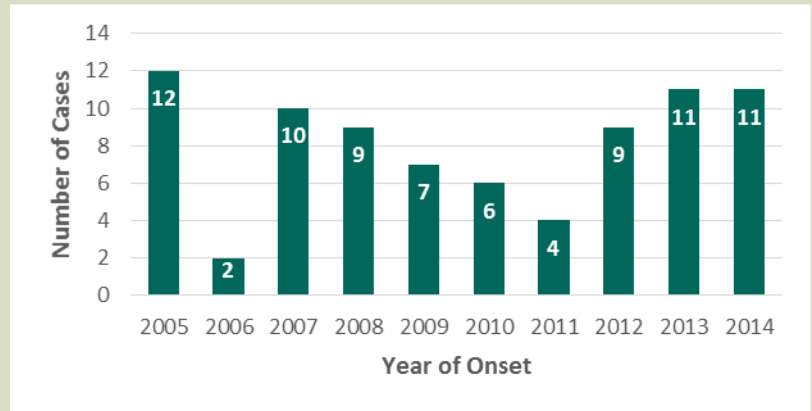




LYME DISEASE

- Lyme disease, an tick-borne infection caused by the bacteria *Borrelia burgdorferi*, is endemic to Sonoma County.
- Between 2005 and 2014 there were 81 cases meeting the surveillance case definition for a confirmed case* of Lyme disease, with an average of ~8 cases per year (range 2-12 cases).^{1,2}

**Cases of Confirmed Lyme Disease by Year of Symptom Onset
Sonoma County, 2005—2014**



*Cases of Lyme disease are classified and reported using the 2011 CDC Case Definition found here:
<http://wwwn.cdc.gov/nndss/conditions/lyme-disease/case-definition/2011/>

Lyme Disease in California

Between 2010 and 2014, an annual average of 79 confirmed cases of Lyme disease were reported in California (range 68-96 cases).² The five-year average incidence of Lyme disease in California was 0.21 cases per 100,000 person-years.² The Sonoma County average incidence for the same time period was 1.68 cases per 100,000 person-years, considerably higher than the state rate.² Other counties with high incidence of Lyme disease infection include Sierra (6.3 cases/100,000), Trinity (5.9 cases/100,000), Humboldt (3.6 cases/100,000), Mariposa (3.3 cases/100,000), and Mendocino (2.5 cases/100,000). Sonoma County had the 9th highest average incidence of Lyme disease among all California counties between 2010 and 2014.²

Lyme Disease in Sonoma County

Between 2005 and 2014 there were 81 cases meeting the surveillance case definition for a confirmed case of Lyme disease, with an average of ~8 cases per year (range 2-12 cases).² Following the migration to the California Reportable Disease Information Exchange (CalREDIE) in 2011, detailed information on demographics, geography, clinical characteristics and potential exposures is available for analysis on 36 recent cases.⁴

SELECTED DEMOGRAPHICS

Confirmed cases ranged in age from 4 to 71 years (average, 36 years). Of the 36 cases diagnosed since 2011, 8 were children under the age of 15 (22%). There were slightly more males than females (58% vs. 42%, respectively).

GEOGRAPHY

Persons with confirmed Lyme disease reside throughout the County, though the city of residence does not necessarily reflect the location of exposure. The geographic distribution of cases is consistent with the population distribution in Sonoma County. Cities with the most cases include Santa Rosa (15 cases), Sebastopol (5 cases), Petaluma/Penngrrove (5 cases).

Lyme Disease in Sonoma County (continued)

CLINICAL CHARACTERISTICS

Among the 36 confirmed cases of Lyme disease with detailed clinical information available, 18 had a reported erythema migrans (EM) rash (50%). Other reported clinical manifestations included joint pain and swelling (N=11, 31%), facial/cranial neuropathy (N=7, 19%), and chronic progressive arthritis (N=3, 8%). Among those with joint involvement, knees were most often affected.

One patient was hospitalized and the remainder were managed in an outpatient setting. There were no deaths due to Lyme disease.

REPORTED EXPOSURE

Exposure information was only available for 25 of the 36 confirmed cases. Of the 25, five reported visiting other states where Lyme disease is highly endemic (MA, MN, NY, VT, Other). Of the remaining 20, the majority reported outdoor activities such as hiking or working outdoors in Sonoma County or in the neighboring counties of Mendocino or Napa.

Selected Characteristics of Confirmed Lyme Disease Cases Sonoma County, 2011—2014

	N	%
Age		
<10	3	8
10-19	5	14
20-29	8	22
30-39	4	11
40-49	4	11
50-59	9	25
60+	3	8
Gender		
Female	15	42
Male	21	58
Clinical Manifestations*		
Erythema migrans (EM)	18	50
Joint swelling	11	31
Facial palsy/Cranial neuropathy	7	19
Chronic progressive arthritis	3	8

*Not mutually exclusive

Tick Testing by Sonoma County Public Health Laboratory

Between 2009 and 2014, over 6,900 ticks, primarily adults, were tested for evidence of *Borrelia burgdorferi* infection by the Sonoma County Public Health Laboratory by immunofluorescence assay (IFA).⁵ Of these, 82% (N=5,687) were *Ixodes pacificus* or other non specified *Ixodes* species. Among all *Ixodes* submitted, 2% were positive for *B. burgdorferi* (N=121).

It is important to note that a positive finding in a single tick does not indicate a confirmed infection in a human or other host animal, nor does a negative finding rule out the possibility of *B. burgdorferi* infection. Also, Sonoma County Public Health Laboratory performs testing regardless of the geographic origin of the tick, so these results may not be representative of only Sonoma County. Of all ticks submitted between 2009 and 2014 73% were from Sonoma County or the surrounding counties of Lake, Marin, Mendocino and Napa.⁵

References

- Centers for Disease Control and Prevention, National Notifiable Diseases Surveillance System. Lyme Disease (*Borrelia burgdorferi*) 2011 Case Definition. <http://www.cdc.gov/nndss/conditions/lyme-disease/case-definition/2011/> Accessed 5.13.2015 by L. Gardner.
- California Department of Health Services, Vector Borne Disease Section. 2014 Annual Report. October, 2015. <http://www.cdph.ca.gov/programs/vbds/Pages/VBDSAnnualReports.aspx>. Accessed 5.13.2015 by L. Gardner
- California Department of Health Services, Center for Health Statistics. California Electronic Death Registration System. Data for death years 2005-2014 downloaded multiple occasions between 2011 and 2015 by L. Gardner.
- California Department of Health Services, California Reportable Disease Information Exchange, Data Distribution Portal. Accessed 5.13.15 by L. Gardner.
- Sonoma County Department of Health Services, Public Health Laboratory. Apollo Laboratory Information Management System. Accessed 5.13.15 by M. Ferris.