
**Report to
The Vermont Legislature**

**Lyme and Other Tickborne Diseases in Vermont:
2016 Report to the Legislature**

**In Accordance with Act 134 (2014) Section 4,
*An Act Relating to Lyme Disease and Other Tick-borne Illnesses***

Submitted to: House Committee on Health Care
Senate Committee on Health and Welfare

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Introduction

This report reviews the Vermont Department of Health's (VDH) tickborne disease surveillance data and summarizes educational efforts undertaken in 2015. This report is required by Act 134 (2014) Section 4.

Lyme disease is the most commonly reported tickborne disease in Vermont and has been diagnosed in residents from every county in the state. Lyme disease was first reported in Vermont in 1988, but the numbers of reported cases have increased dramatically over the past seven years. The increase in reported cases is likely due to a combination of more disease, better recognition, improved diagnosis and increased reporting.

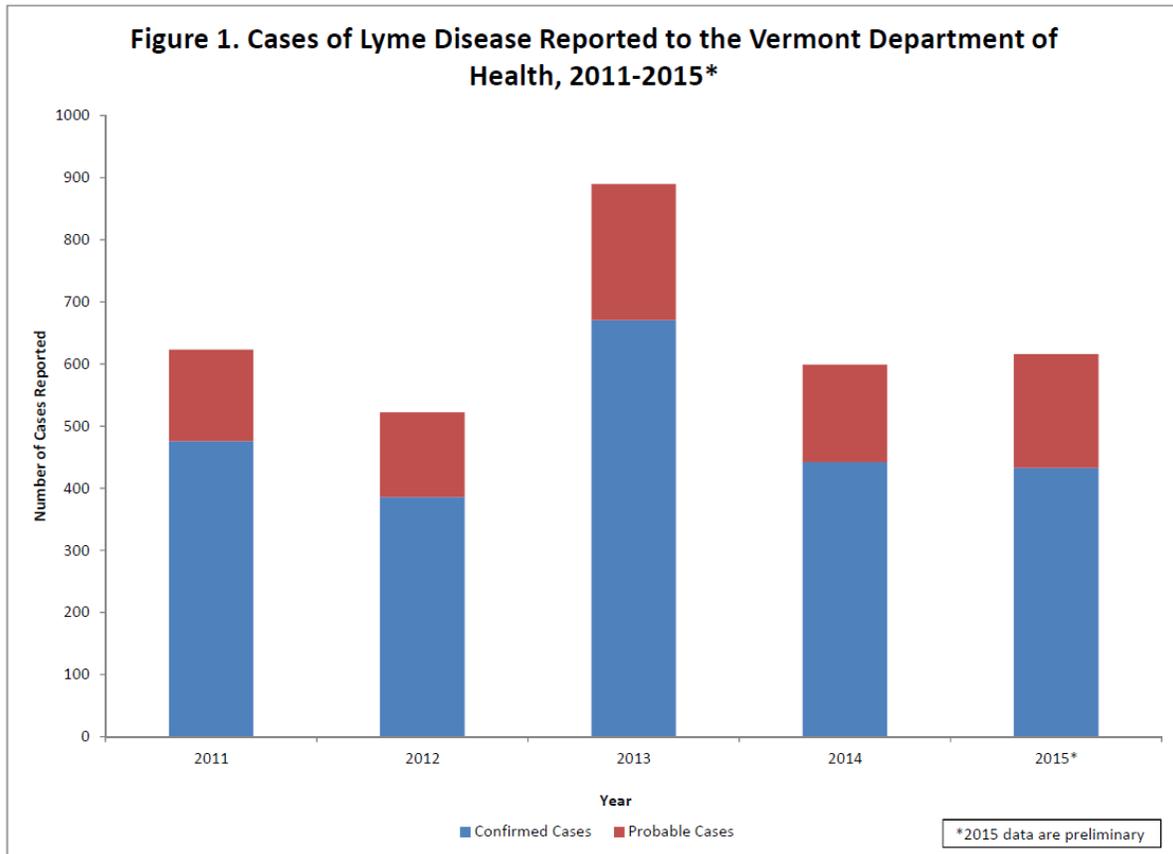
Lyme disease is transmitted by the bite of the deer tick, *Ixodes scapularis*. The deer tick can also transmit the pathogens that cause anaplasmosis, babesiosis and Powassan virus disease.

Anaplasmosis is the next most commonly reported tickborne disease in Vermont, however, the number of cases reported is just a fraction of the reported cases of Lyme disease. Other tickborne diseases are only rarely reported in Vermont.

There is no human vaccine against these diseases, and there are no proven ecological strategies to reduce the tick population. The current best tool available to prevent Lyme disease and other tickborne diseases is education. Education for the general public is focused on preventing tick bites and on the signs and symptoms of tickborne diseases. Education for healthcare providers is focused on early recognition, proper diagnosis and appropriate treatment of these diseases.

Disease Surveillance

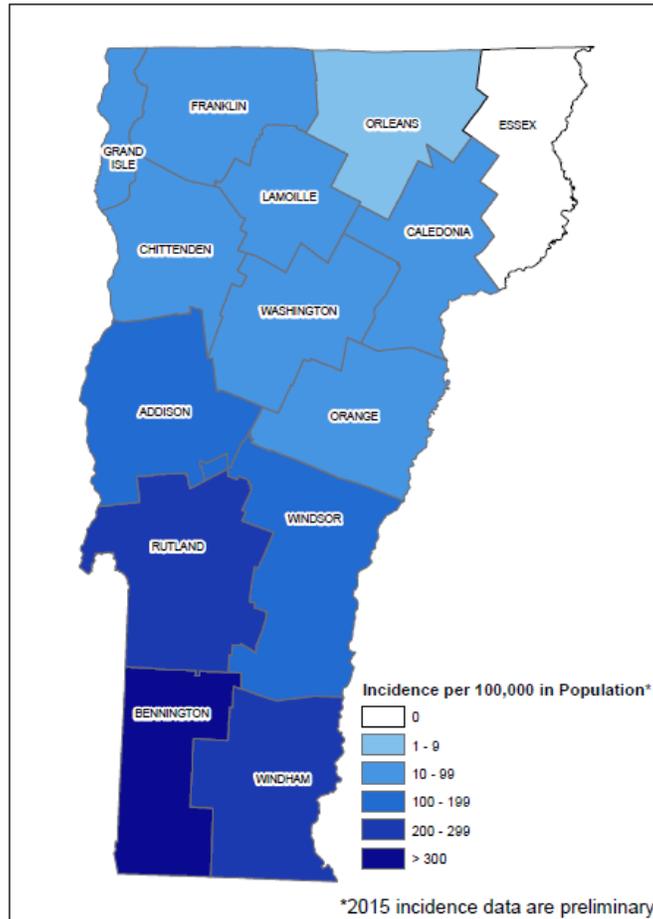
As of November 7, 2015, VDH had followed up on 1025 reported cases of Lyme disease during 2015. Of these reported cases, 433 met the Centers for Disease Control and Prevention’s (CDC)¹ case definition for a confirmed case of Lyme while 183 met the definition of a probable case. The final case counts for 2015 will exceed the previous year’s levels, when 442 confirmed and 157 probable cases were reported to VDH (Figure 1). However, the 2015 case counts are not likely to surpass the 2013 levels when 671 confirmed and 219 probable cases were reported to VDH – the highest annual case counts on record.



¹ For case definitions see <http://www.cdc.gov/nndss/conditions/>

Infections continue to occur most commonly in residents of Bennington, Rutland, and Windham Counties. In 2015, cases of Lyme disease have been reported in all but Essex County (Figure 2).

Figure 2. Incidence Rate of Confirmed and Probable Cases of Lyme Disease in Vermont 2015*



The number of cases of anaplasmosis has been steadily increasing since the first locally acquired case was confirmed in 2010. In 2014, 51 confirmed and 16 probable cases were reported to VDH. As of November 7, 2015, VDH has documented 94 confirmed and 21 probable cases. Most of these cases are reported in residents of Bennington and Rutland Counties.

Other tickborne diseases are reported sporadically. Seven confirmed cases and one probable case of babesiosis were reported as of November 7, 2015. No cases of the deer tick strain of Powassan virus have been detected in Vermont.

Beginning in 2013, VDH was able to provide a modest grant to a researcher at Lyndon State College to collect ticks and test them for the organisms that cause Lyme disease, anaplasmosis and babesiosis. The researcher has collected ticks from multiple sites in the state, six on the western side and six on the eastern side. So far over 1,000 deer ticks, *Ixodes scapularis*, have been collected and tested for tickborne diseases. Fifty-six percent of adult ticks and 25% of nymphal ticks have tested positive for the organism that causes Lyme disease. Less than 1% of adult ticks have tested positive for the organism that causes anaplasmosis. No nymphal ticks

have tested positive for anaplasmosis and no ticks have tested positive for the organism that causes babesiosis. Funding for this project is provided by the Climate Change grant awarded to VDH's Division of Environmental Health by the Centers for Disease Control and Prevention. The contract funding this surveillance will expire in the winter of 2016. The Department hopes to continue surveillance in 2016, but it is currently unclear if funding will be available from the previous source.

Education and Outreach

Education and Outreach are essential for combatting the spread of Lyme disease. The following outlines the Vermont Department of Health's initiatives and efforts to inform the general public and health care providers about the prevention and detection of Lyme Disease:

General Public

1. Public outreach and education remain a key part of VDH's strategy to combat Lyme disease. The VDH website has up-to-date information about Lyme disease, other tickborne diseases, tick ecology and tick bite prevention. Because VDH has limited funds for education and outreach, the website is a cost-effective method for making information available.

2. In September 2013, VDH launched the Vermont Tick Tracker website at <http://healthvermont.gov/ticktracker/index.aspx>. This website displays a map of Vermont for people to indicate where and when they find ticks so that others can learn where ticks have been found in Vermont. Most importantly, it provides links back to the VDH website so that people can get more information about ticks and tickborne diseases. In 2014, 249 reports were made to the site. The Tick Tracker website is currently active but the totals for 2015 are not yet available. The Centers for Disease Control and Prevention highly regards and recommends the use of the Tick Tracker for epidemiological purposes.
3. In the spring of 2015, VDH sponsored the third annual Lyme disease prevention video contest for high school students. Ten excellent entries were received (<https://www.youtube.com/playlist?list=PLk9-Nj2hBiYrc36wjHyyF-Sb5WDDHqOyT>) and small awards were given out for first, second and third places. The video contest will be repeated in 2016.
4. A Lyme disease curriculum for elementary school students is posted on the VDH website. The Department is not aware of how broadly this curriculum is accessed and used.
5. VDH staff gave multiple media interviews about Lyme disease and tickborne diseases to television, radio and print journalists throughout the year.
6. VDH continues to look for organizations in Vermont to partner with to educate the public. For the fourth year in row, VDH partnered with Green Up Vermont to educate volunteers and promote tick bite prevention on Green Up Day. VDH will work with Green Up Vermont again in 2016. VDH also provided educational materials to the Vermont Youth Conservation Corps, Green Mountain Club, UVM Master Gardener Program and the Four Winds Nature Institute for dissemination among their members and volunteers.

7. Since 2013, VDH has placed an advertisement and information about Lyme disease in the *Vermont Hunting, Fishing and Trapping Laws and Guide* (http://www.vtfishandwildlife.com/UserFiles/Servers/Server_73079/File/Hunt/hunting%20guides/2015_VERMONT_DEER_SEASON_GUIDE.pdf) to remind people to take precautions to prevent tick bites when they engage in these recreational activities. The ad will be repeated in the 2016 edition.
8. In August and September, VDH launched a small advertising campaign. VDH paid for underwriting messages about ticks and Lyme disease on Vermont Public Radio. At the same time, ads were placed on Google and Facebook. These efforts increased pageviews to VDH's Lyme disease web page by over 500% compared to the same time period in 2014. This was a very successful effort, but funds to repeat the campaign are not currently available.
9. In 2015, VDH staff gave 8 presentations about Lyme disease to the general public at venues around the state. Over 400 people attended these events. Presentations are given upon request. In addition, District Office staff provided information about Lyme disease at many health fairs, conferences and meetings around the state.
10. VDH maintains an inventory of our "Be Tick Smart" informational booklet and our Tick Identification cards. Over 50,000 booklets and Tick ID cards have been given out since 2010. These materials can be ordered on our website. Printed materials are distributed by District Office staff at health fairs and conferences as well as at a variety of locations in their jurisdictions, including primary care practices, schools and libraries. Materials are also mailed directly to interested parties when requested.

Health Care Providers:

1. VDH hosted a Continuing Medical Education session on tickborne diseases for health care providers in November at the department's Immunization and Infectious Disease Conference in Stowe. VDH arranged for an Infectious Disease Specialist from the University of Vermont Medical Center (UVMCC) to deliver the presentation, which is available on the conference website (http://www.vermontidconference.com/uploads/3/6/0/5/3605970/grace_11_12_15_vdh.pdf).
2. The Department is planning to sponsor another provider training in the Spring of 2016. This will be the fifth stand-alone Lyme Disease training the department has conducted during the past four years. The proper testing, diagnosis and treatment of Lyme disease was discussed at all of these sessions. The benefits of early treatment and the possible need to retest people if acute tests are negative were also discussed.
3. VDH maintains a webpage for healthcare providers: <http://healthvermont.gov/prevent/lyme/provider.aspx>. The webpage includes links to the most current treatment guidelines for tickborne diseases and to the CDC healthcare provider resource page.
4. VDH printed copies of CDC's quick reference manual for healthcare providers on tickborne diseases. This 30-page manual was provided at the most recent educational sessions.
5. All healthcare professionals are invited to attend the educational sessions that VDH participates in. It is not clear what role mental health professionals, clinical social workers and clinical mental health counselors would play in the diagnosis of Lyme disease. Therefore, these groups have not yet been targeted.
6. VDH staff keeps up to date on recommendations regarding best practices for diagnosis and treatment of Lyme and other tickborne diseases. Staff participates in webinars and

educational sessions at conferences whenever they are available. Staff is included on public health listservs where ticks and tickborne diseases are sometimes discussed. The VDH website is updated when recommendations are changed.

7. VDH staff members routinely consult with public health officials in other northeastern states to discuss best practices. VDH continues to encourage providers to report diagnoses of Lyme disease and other tickborne diseases. In 2013, a record number of reports were received, so the surveillance system is working. However, education and outreach about surveillance will continue. An on-line form for reporting is now available. It is hoped that this will encourage more providers to report as well as improve the quality of the information provided.
8. In 2015, VDH took the initiative to bring the CDC Lyme Corps program to Vermont. Lyme Corps is a new initiative designed to train medical, nursing and public health students to become educators about Lyme and other tickborne diseases. These trained educators not only teach the public about these diseases, but they also educate members of their own health care community, thereby helping to inform the next generation of health professionals about these diseases.
9. Seven Vermont students were trained in the spring of 2015 by VDH and CDC staff. Following that, students began reaching out to the public and health community. By October these students had given 17 presentations, written 15 newsletters, blogs or other articles and engaged in 20 different discussions in online health-related forums. They also posted tick prevention signs around Vermont, distributed educational materials at farmer's markets and libraries and conducted a research project on tick mortality and the effectiveness of running tick-infested clothes through a hot clothes dryer. VDH would like to continue the Lyme Corps program in Vermont, though funding for the program in 2016 is not currently available.

Conclusion

Lyme disease will continue to be prevalent in Vermont for the foreseeable future. Other tickborne diseases, such as anaplasmosis, may continue to emerge. VDH will continue to conduct surveillance for these diseases using standardized national case definitions. VDH will continue to provide Vermonters the most up-to-date science-based information available on tickborne diseases.