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# Preventing Lyme Disease in Windsor County, VT

JP

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BE  TICK  
SMART

**REPEL • INSPECT • REMOVE**

PREVENTING LYME DISEASE IN WINDSOR  
COUNTY, VT

J.P.

June 2015

Community Mentors: E.B. and W.F., Vermont Department of Health

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# PROBLEM IDENTIFICATION

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- Lyme disease is a bacterial infection caused by *Borrelia burgdorferi* and is transmitted primarily by deer ticks (*Ixodes scapularis*). A deer tick must be attached for at least 36 hours for transmission to occur.<sup>1, 2</sup>
- Most people with Lyme disease develop the erythema migrans rash (left) a few days or weeks after a tick bite, and many have flu-like symptoms. *Borrelia burgdorferi* is susceptible to doxycycline and other antibiotics, halting the disease process. Late signs of untreated Lyme disease include joint swelling, myocarditis, and facial palsy.<sup>1, 2</sup>
- Lyme disease can be prevented by preventing tick bites, removing ticks early, and providing post-bite prophylaxis when appropriate.<sup>1</sup>
- Lyme disease has been on the rise in Vermont since 2005.<sup>3</sup>



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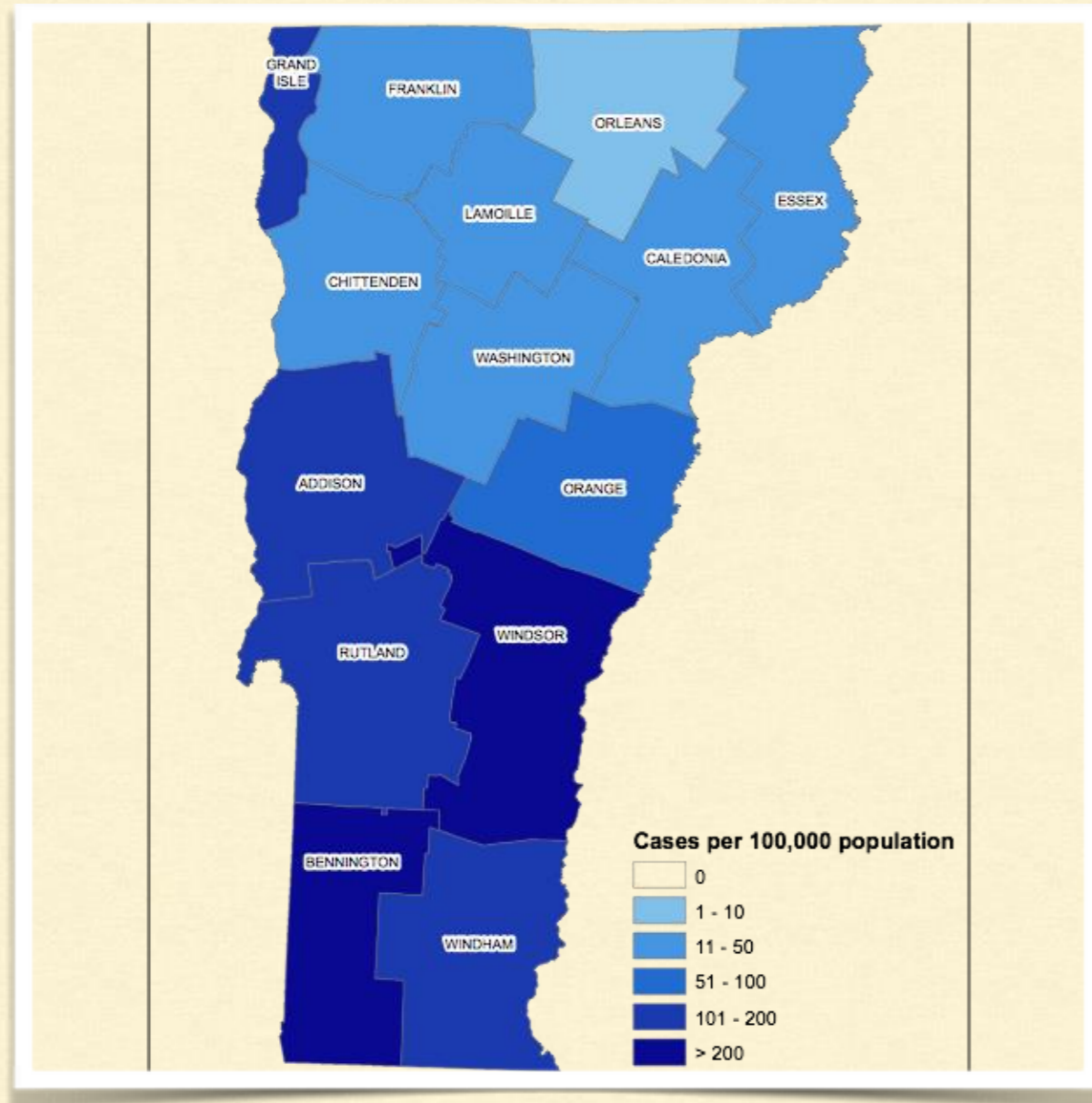
# PUBLIC HEALTH COST

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- In 2014, Windsor County had an incidence of 202 confirmed or probable cases of Lyme disease per 100,000 people, the second-highest rate in Vermont.<sup>3</sup>
- The Springfield Health Center gets a few calls or visits most weeks related to tick bites during tick season.
- The two age groups most affected are children and middle-aged adults,<sup>4</sup> making schools an appropriate venue through which to conduct prevention education.
- Most Vermont cases of Lyme disease are reported in the summer months,<sup>5</sup> when deer ticks are active and feeding.
- The Vermont Department of Health (VDH) has launched its “Be Tick Smart” Lyme disease prevention campaign, promoting tick-bite reduction through its slogan, “Repel, Inspect, Remove.”

# COMMUNITY CONNECTIONS



- Received some training from the Centers for Disease Control and Vermont Department of Health regarding tick bite and Lyme disease prevention.
- Worked closely with the Vermont Department of Health to extend their “Be Tick Smart” campaign to children in Windsor County, where there is high incidence.
- W.F., Public Health Nurse, Springfield District Office, Vermont Department of Health.
  - Lyme disease prevention is a priority of the VDH. Has many connections with school nurses to get in to talk to children. Adults are harder to reach, and may require a different approach. Will be continuing and extending Lyme prevention efforts throughout the summer.
- C.S., School Nurse, Green Mountain Union High School.
  - The high school is holding an all-day health fair and is seeking people from the health promotion and medical communities to staff tables. Sees Lyme disease prevention as a relevant topic, as tick bites are common and Lyme disease cases are not infrequent in this area. There are a lot of questions about ticks and Lyme disease.

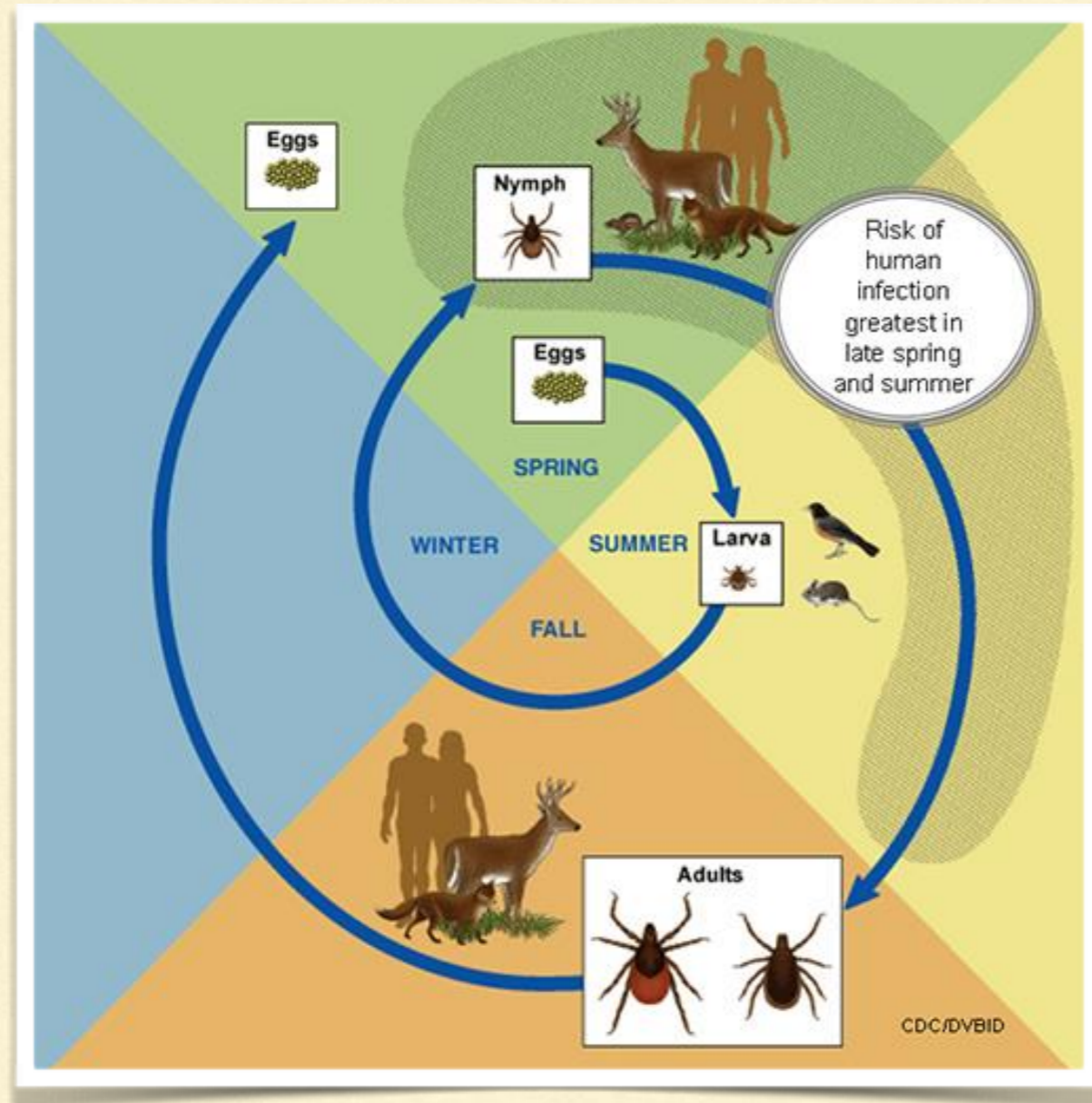


# INTERVENTION



- Table at Green Mountain Union High School health fair
  - Grades 7-8 were led to the fair in small groups by teachers. Grades 9-12 came in by themselves during and after lunch.
  - Students win prizes by answering a question from each table at the fair. To reinforce the key message, students had to write the prevention slogan as the answer for the Lyme table.
  - All students received the VDH Tick ID card, with prevention and tick removal instructions on the back. Additional VDH materials were available.
  - Students would receive another incentive if they stayed for a brief presentation focused on “Repel, Inspect, Remove” and on recognizing the erythema migrans rash.
- Presentation to Cavendish Elementary School
  - Modified an existing VDH curriculum presentation for the grades 3-6 at this venue. Major focus was on tick-bite avoidance (an elaboration of “Repel, Inspect, Remove”), and on recognizing the erythema migrans rash. As the presentation was during the final week of school, additional children were also reminded of outdoor safety while still encouraging outdoor play.
  - VDH Tick ID cards were passed out, and other materials were available.

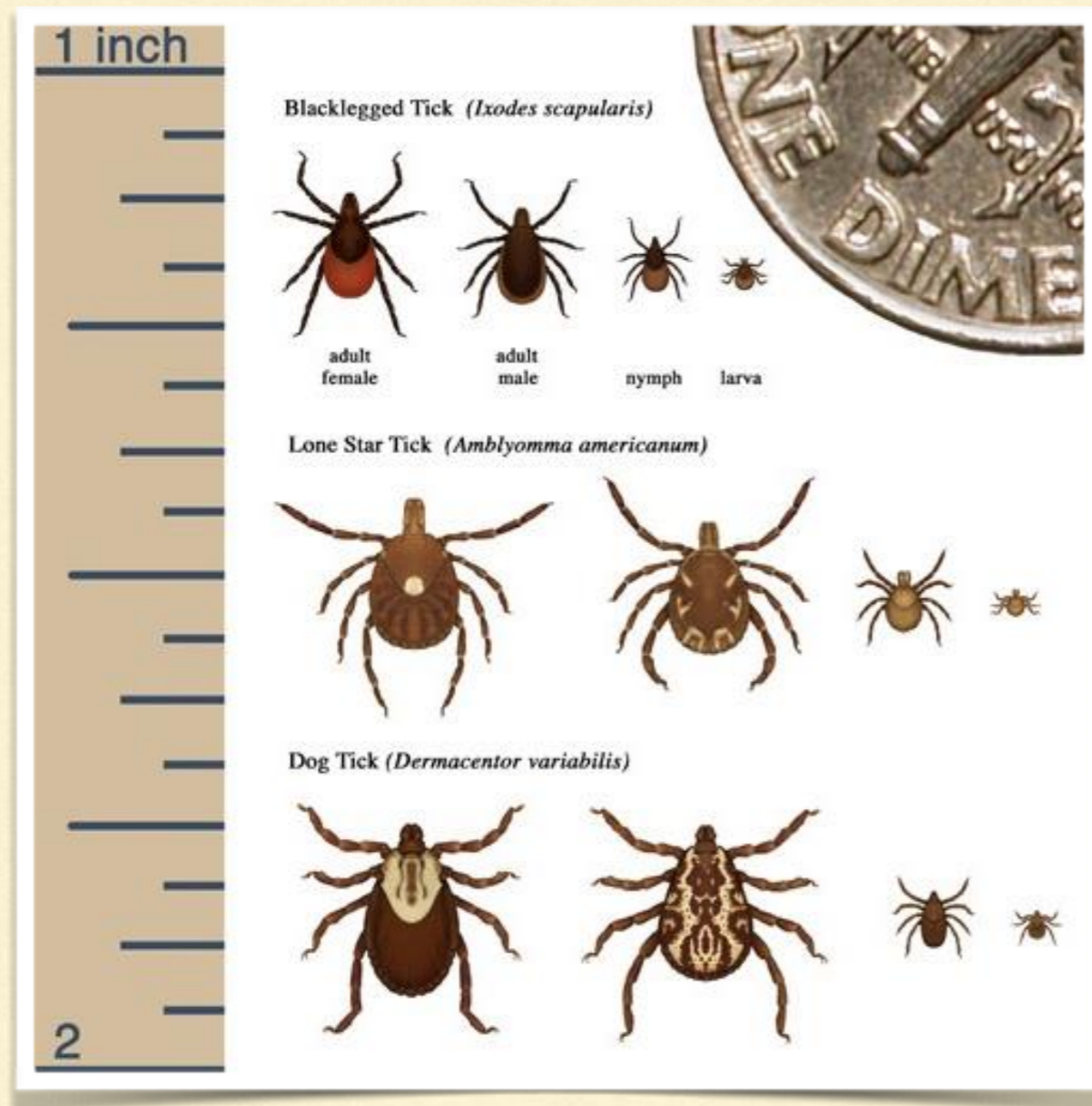
# RESULTS/RESPONSE



- Approximately 150 students and 10 adults were reached at Green Mountain Union High School health fair.
  - In addition to receiving a tick ID card, most students were willing to listen to the brief presentation focused on “Repel, Inspect, Remove” and on recognizing the erythema migrans rash.
  - The health fair’s “scavenger hunt” was successful in encouraging students to visit each table presenter, and most students accurately transcribed the take-home message.
- Approximately 65 students and 5 adults were reached at Cavendish Elementary School.
  - Students were attentive and able to repeat key elements of the presentation. They showed improvement from the three-question pre-test to the post-test, suggesting at least short-term retention of key prevention messages.



# EVALUATION OF EFFECTIVENESS



- Success could be measured by an increase in tick-bite reports from Windsor County as people find more ticks through daily tick checks, and a decrease in cases of disseminated Lyme disease reported to the VDH as people prevent Lyme disease and recognize early localized disease.
- However, yearly fluctuations in tick populations, as well as increasing *Borrelia* prevalence in the tick population, may obscure effects.
- Success could be measured indirectly by formally or informally measuring retention of key information, such as with the immediate pre- and post-test included in the presentation to Cavendish Elementary School.
- However, short-term recall may not correlate strongly with long-term behavior change to avoid tick bites, nor to reduced Lyme disease transmission.



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# RECOMMENDATIONS

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- Plan another outreach push to schools just before summer vacation in June 2016, timed for the onset of tick season for and when kids spend time outdoors.
  - This year's health fair at Green Mountain Union High School was very successful. Plan to send a representative or collaborator of the VDH to the GMUHS health fair again next year.
  - Given the reception this year, book multiple elementary and secondary school visits to reach children throughout Windsor County.
  - Plan additional outreach to parents, especially of younger children, who will ultimately be responsible for applying repellent, conducting tick checks, and responding to tick bites.
- Continue to align local Lyme disease prevention efforts with broader VDH and CDC campaigns. This increases the likelihood that people will hear the same information in a few different contexts, increasing retention, and also ensures that information is current and accurate.
- Review regional, state, and national data to identify additional effective ways to communicate prevention messages to the public.

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