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Lyme Disease Education: Prevention and Response to Tick Bites

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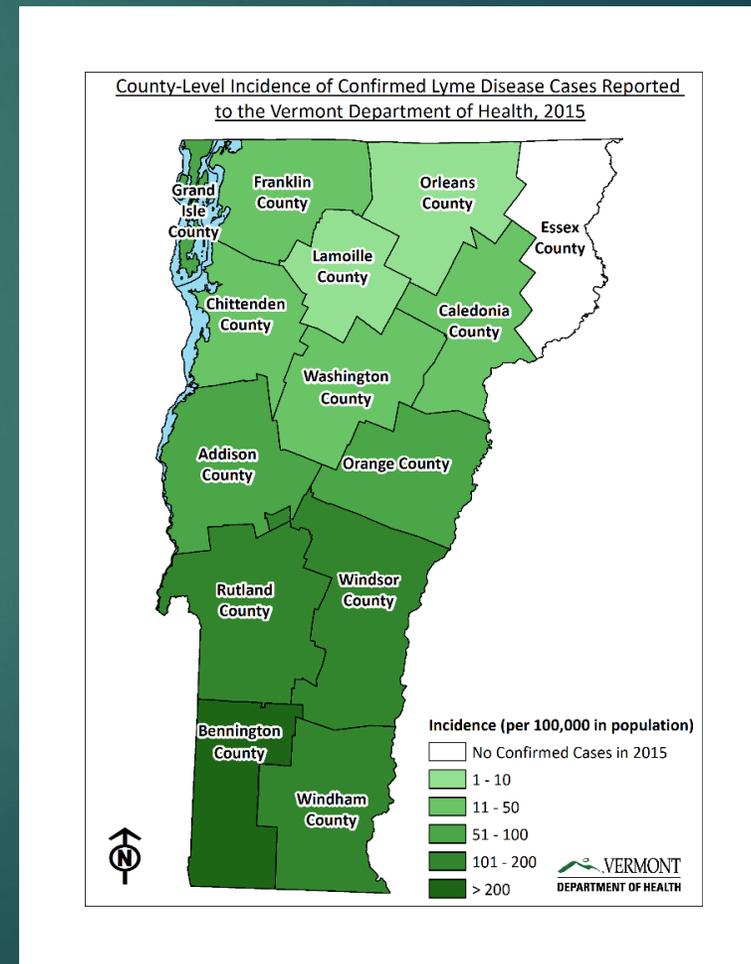
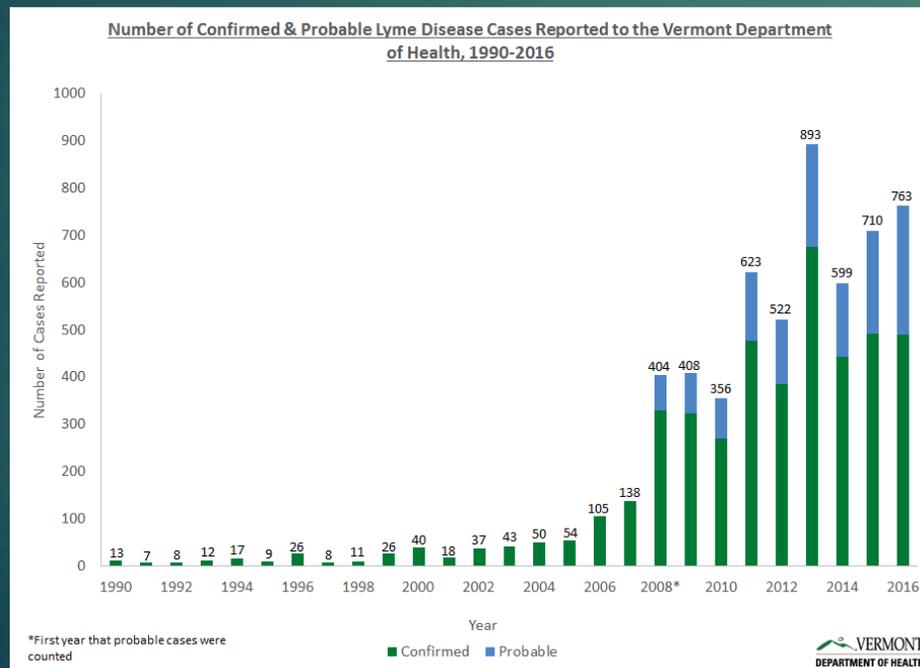
Lyme Disease Education

PREVENTION AND RESPONSE TO TICK BITES

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Thomas Chittenden Health Center, Williston VT
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Problem Identification and Need

- ▶ Lyme disease is the most common tickborne illness in Vermont
- ▶ In 2016 Vermont had the 2nd highest rate of reported Lyme disease cases
 - ▶ The most southern parts of the state are the most affected, with incidences reaching >100 per 100,000 people
- ▶ Cases of Lyme disease in Vermont are rapidly increasing
 - ▶ A nearly 7 fold increase in the past decade
- ▶ Lyme disease is both preventable and treatable



Public Health Cost

- ▶ Retrospective analysis of medical claims of 52,795 individuals treated for Lyme disease were compared to 263,975 matched controls
 - ▶ Lyme disease was shown to result in a \$2,986 increase in medical costs per person and 87% more outpatient visits over a 12 month period
 - ▶ With estimates of 240,000-440,000 new cases of Lyme disease annually, the total cost comes out to \$712-\$1.3 billion each year
- ▶ Analysis including the American Time Use Survey portrays the financial losses in the recreational sector as a result of Lyme disease
 - ▶ Research shows that the average individual living in the northeast foregoes eight 73 minute outdoor recreational trips annually
 - ▶ This equates to \$2.8-\$5 billion losses in the NE annually
 - ▶ “...the cost is not what people spend on doctors, or medicine, or even bug spray. These are costs that everybody incurs because we're all choosing second-choice activities to avoid getting Lyme disease.”
– Eli Fenichel, Yale School of Forestry & Environmental Sciences Assistant Professor
 - ▶ “People are giving up trips, and it's not just hiking and camping in the woods. It's trips to the park, soccer games, or walks and bike rides in places where there are stands of trees and tall grasses... a wide variety of activities pretty much anywhere in this part of the Northeast that's outdoors.” – Kevin Berry, Yale School of Forestry & Environmental Sciences Former Postdoctoral Scholar

Community Perspective

- ▶ Nancy, Triage Nurse, Thomas Chittenden Health Center
 - ▶ Receives 3-4 calls from patients daily regarding tick bites, and potential Lyme disease
 - ▶ Notices that there is increased frequency of calls in the summer and fall months
 - ▶ The majority of patients calling are very concerned that they have Lyme disease, and all the callers want the antibiotics

- ▶ Anonymous, MA, Champlain Medical Urgent Care
 - ▶ More frequent calls, roughly 1/week in the summer months
 - ▶ Patients are very concerned about tick bites, especially about the bullseye rash
 - ▶ The majority of patients that call or come into clinic with tick bites do not know the parameters or warning signs to look out for Lyme disease
 - ▶ Feels that more patient education would be helpful

Intervention and Methodology

- ▶ Create a handout with information about Lyme disease prevention, and appropriate response to tick bites
- ▶ Handouts written with clear and succinct information
- ▶ Handouts distributed to patients in waiting rooms, and distributed to at risk patients
- ▶ Goal is to equip public with information in an effort to:
 1. Decrease Lyme disease occurrence
 2. Decrease unnecessary health care visits, and costs

Results

- Handout with basic, but important information on prevention and proper response to tick bites
- Includes general information and signs and symptoms of Lyme disease

Lyme Disease: General Information, Prevention, and What to do When Bit by a Tick.

General information

Lyme disease is a bacterial infection, of *Borrelia burgdorferi*. This bacteria is transmitted to humans via the blacklegged deer tick. **Not all tick bites are infectious, and the blacklegged deer tick needs to be attached greater than 24 hours to transmit the disease.** Lyme disease is the most common in the northeast and great lakes region. This disease is preventable and treatable if diagnosed early.

Signs and Symptoms

Early disease (days 3-30 after tick bite): **characteristic bullseye rash, fevers, chills, muscle and joint aches, headache.** Late disease (days to months after tick bite): facial palsy, severe arthritis, heart palpitations, shooting pains and numbness



Tick Removal instructions (per the CDC website)

1. Use fine-tipped tweezers to grasp the tick as close to the skin's surface as possible.
2. Pull upward with steady, even pressure. Don't twist or jerk the tick; this can cause the mouth-parts to break off and remain in the skin. If this happens, remove the mouth-parts with tweezers. If you are unable to remove the mouth easily with clean tweezers, leave it alone and let the skin heal.
3. After removing the tick, thoroughly clean the bite area and your hands with rubbing alcohol, an iodine scrub, or soap and water.
4. Dispose of a live tick by submersing it in alcohol, placing it in a sealed bag/container, wrapping it tightly in tape, or flushing it down the toilet. Never crush a tick with your fingers.



When to seek a healthcare professional.

- Blacklegged deer ticks need to be attached for greater than 24 hours to transmit the disease. **If a tick could have been attached longer than 24 hours consider contacting a healthcare provider especially if you have symptoms.**
- Contact a healthcare provider if you develop symptoms consistent with Lyme disease.

Prevention

- Avoid direct contact with ticks, **stay on center of trail paths, avoid brushy areas**
- Use repellent that contains **at least 20% DEET, picaridin, or IR3535** on exposed skin
 - Follow product instructions
- Use **permethrin** products on clothes
- **Frequently check skin** for tick bites

Information in this handout was gathered from the Center for Disease Control and Prevention (CDC). For more information on Lyme disease please visit <https://www.cdc.gov/lyme/index.html>.

Evaluation of Effectiveness and Limitations

- ▶ Will have to monitor for effectiveness over time, especially as we head into winter when Lyme disease is less common in Vermont
- ▶ Communication with triage nurses and MAs who triage calls from patients with tick bites, about frequency of calls and general patient education about Lyme disease could be informative
- ▶ Monitor cases of Lyme disease in Chittenden County and at Thomas Chittenden Health Center
- ▶ Limitations include:
 1. Inability to ensure large numbers of public critically read handout
 2. Difficult to reliably assess impact of handouts

Recommendations for future projects

- ▶ Business cards that people can more easily take home with them, with more succinct information on proper response to tick bites
- ▶ Handouts focusing on treatments with antibiotics
- ▶ Handouts available to other primary care offices
- ▶ Information put on clinic website
- ▶ Dot phrases for physicians to include on high-risk patient take home instructions, with Lyme disease information
- ▶ Information made available at local camp sites, and parks

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