Infectious Disease *Bulletin*

VERMONT DEPARTMENT OF HEALTH

Guidance • Support • Protection • Prevention

Division of Health Surveillance – Infectious Disease Epidemiology Section May 2012

Lyme Disease Prevention

Lyme disease is the most commonly reported tickborne disease nationally and in Vermont. The number of cases reported to the Vermont Department of Health (VDH) has been steadily rising for several years, and in 2011, 623 confirmed and probable cases were reported.

Lyme disease is transmitted by the deer tick, *Ixodes scapularis*, also known as the black-legged tick. Fourteen different species of ticks have been found in Vermont, but the deer tick is by far the most numerous. Most of the ticks that are found by people are deer ticks. The deer tick has three life stages: larva, nymph and adult. Only the nymphs and adults transmit Lyme disease. The nymphs are small and can be hard to find, so most illness is due to bites from infected nymphs. Nymphs are most active from May through July, and that is when most cases of Lyme disease occur.

Ticks feed once during each life stage. After they bite into a host, they usually stay attached and feed to repletion, a process that takes about 5 days. During this time they slowly engorge and become quite large. The body weight of a feeding female tick can increase 80 to 120 times. It takes time for an infected tick to transmit the bacteria that cause Lyme disease. Ticks attached less than 36 hours pose a low risk for transmission. The longer an infected tick is attached the higher the risk for transmission. Studies have shown that, overall, the risk for getting Lyme disease after a known tick bite is about 5%.

The best way to prevent Lyme disease is to prevent tick bites, and to remove attached ticks promptly. As much as is possible and is practical, people should avoid places where ticks like to be. This includes tall grassy areas and brushy areas, especially along the edges of woods. For instance, when hiking, stay on the trail.

For many Vermonters, avoiding tick habitat is not possible, so other precautions should be taken. Daily tick checks are a very important part of Lyme disease prevention. People should check themselves thoroughly from head to toe, including the scalp, armpits, groin, back and backside of legs. Parents should check their children, and everyone should check household pets that go outside. Prompt removal of ticks can prevent Lyme disease. In addition, one study has shown that showering soon after coming inside can lower the risk of getting Lyme disease.

Tick repellents are very effective in preventing tick attachment. When choosing a repellent, carefully read the label and make sure it is effective against deer ticks. Repellents that contain DEET are effective and safe when used according to the manufacturer's instructions. DEET should be used in concentrations up to 30% depending on the length of protection needed. Higher concentrations are not more effective.

Permethrin is a repellent and insecticide that can be applied to clothing or gear. It is very effective against deer ticks and is highly recommended for people who are out in tick habitat daily. Permethrin is sprayed on clothing and should be allowed to dry before wearing. One application will hold up to many washes. Alternatively, it is possible to purchase clothing that has already been impregnated with permethrin. Permethrin is safe to use on children's clothing as well.

When out in tick habitat, wearing light colored clothing can make it easier to spot the ticks. Tucking pants into socks can help prevent the ticks from biting, but socks with a coarse weave may not stop all of the ticks. Wearing gaiters impregnated with permethrin may be very helpful, and is recommended for people who spend a lot of time in tick habitat.

The best way to remove a tick is to grasp it close to the skin with a pair of tweezers. Pull up steadily until the tick comes out. There are many tick removal tools available, but not all of them work well.

The *Infectious Disease Bulletin* can be viewed at: http://healthvermont.gov/pubs/IDB/index.aspx
For questions & comments, please contact Patsy Kelso at (802) 863-7240

Vermont – Selected Reportable Diseases – 2012

(Data through MMWR Week 17 4/28/2012) – Provisional

	Campylobacter	Cryptosporidium	E. coli*	Giardia	Group A Strep Inv**	Hepatitis A	Hepatitis B - Acute	Hepatitis B - Chronic	Hepatitis C - Acute	Hepatitis C - Chronic	Legionellosis**	Listeriosis	Lyme §	Meningococcal Inf.	Pertussis**	Salmonella	Shigella	Tuberculosis**	Varicella §
Age																			
<5	3	1	0	1	1	0	0	0	0	0	0	0	1	0	8	1	0	0	13
5-14	3	3	0	2	0	0	0	0	0	0	0	0	7	0	91	0	0	0	32
15-24	7	2	0	3	1	0	0	0	2	26	0	0	7	0	12	4	1	1	6
25-39	4	1	0	5	0	0	0	2	1	102	0	0	4	0	3	3	0	0	2
40-64	8	4	1	10	4	0	1	6	0	117	0	0	25	0	5	5	0	0	1
65+	2	1	0	3	4	0	0	0	0	5	0	0	10	0	0	8	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total (YTD)	**27**	**12**	**1**	**24**	**10**	**0**	**1**	**8**	**3**	**250**	**0**	**0**	**54**	**0**	**119**	**21**	**1**	**1**	**54**
5-yr Median (YTD)	**35**	**13**	**2**	**46**	**9**	**0**	**1**	**†**	**1**	**†**	**1**	**1**	**25**	**1**	**5**	**14**	**1**	**1**	**38**
County of Residence																			
Addison	3	3		2	0	0		0	1	14		0	6	0	30	3			1
Bennington	1	0		2	1	0		0	0	9		0	17	0	5	3			1
Caledonia	1	0		0	0	0		0	1	15		0	0	0	0	0			0
Chittenden	7	3		9	4	0		5	0	86		0	2	0	53	6			6
Essex	0	0		0	0	0		0	0	3		0	0	0	0	0			0
Franklin	2	0		0	0	0		0	0	16		0	1	0	2	0			1
Grand Isle	0	0		0	0	0		0	0	2		0	0	0	8	0			0
Lamoille	0	1		1	0	0		0	0	4		0	1	0	0	3			3
Orange	1	1		2	0	0		0	0	16		0	2	0	0	0			3
Orleans	2	0		2	0	0		0	0	9		0	0	0	3	0			7
Rutland	4	1		1	2	0		1	0	15		0	7	0	4	1			4
Washington	1	1		2	1	0		0	1	7		0	3	0	8	0			2
Windham	3	1		0	1	0		2	0	29		0	9	0	2	3			24
Windsor	2	1		3	1	0		0	0	25		0	6	0	4	2			2
Unknown	0	0		0	0	0		0	0	0		0	0	0	0	0			0
Total (YTD)	**27**	**12**	**1**	**24**	**10**	**0**	**1**	**8**	**3**	**250**	**0**	**0**	**54**	**0**	**119**	**21**	**1**	**1**	**54**

(802)863-7240 **1(800)640-4374 (VT)** **FAX: (802)865-7701**

Shiga toxin-producing Escherichia coli (STEC)

****This column partially obscured to protect patient confidentiality***

§ Includes both confirmed & probable cases

†Data captured differently in previous years; no 5-year median available

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In most cases, no treatment is needed after a tick bite unless symptoms develop. Routine use of antibiotics or serologic testing is not recommended for asymptomatic people. A single 200 mg dose of doxycycline may be offered to adults and children 8 years or older (4 mg/kg, up to a maximum of 200 mg) if all of the following conditions have been met: 1) the tick can be identified as a nymphal or adult deer tick (*Ixodes scapularis)*, and it has likely been attached for more than 36 hours based on the degree of engorgement of the tick or the certainty of the time of exposure; 2) prophylaxis can be taken within 72 hours of the time the tick was removed; 3) the local rate of infection of deer ticks with *B. burgorferi* is greater or equal to 20% (there is indirect evidence that in most of our counties transmission is high enough to reasonably conclude that the infection rate in ticks is likely high enough to meet this criterion); 4) doxycycline is not contraindicated. There is no data to support using a short prophylactic course of any other antibiotics if doxycycline cannot be given.