

# Lyme Disease

Last Reviewed May 2006

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## **Problem:**

Lyme disease is caused by the bacterium *Borrelia burgdorferi* which is transmitted to humans by the bite of infected ticks.

**Symptoms** include a characteristic skin rash called erythema migrans. The rash, seen about 70-80% of the time, begins as a red macula or papule and usually expands over days to weeks in an annular manner, forming a large, erythematous lesion about 5 cm or greater in diameter. A clearing in the center is often seen. (See resources for web link to pictures.) Other symptoms may include fever, headache, fatigue and migratory arthralgias.

If left untreated, infection can spread to joints, the heart, and the nervous system. Palsies of the cranial nerve, meningitis and conjunctivitis can occur. Late disease is characterized primarily by recurrent arthritis affecting large joints.

**Diagnoses** of Lyme disease is based on symptoms, physical findings, identification of the tick and/or the possibility of exposure to infected ticks. Laboratory testing is helpful in the later stages of disease.

**Treatment** of Lyme disease is by use of an antibiotic for 10 to 28 days.

**Prevention** of Lyme disease include using insect repellent (DEET), wearing of hats, long sleeves and pant legs tucked into socks, light colored clothing, removing ticks promptly, landscaping, and following the school's integrated pest management. The concentration of DEET relates to the average length of time the product stays effective. The CDC provides general guidelines:

- A product containing 23.8% DEET provided an average of 5 hours of protection from mosquito bites.
- A product containing 20% DEET provided almost 4 hours of protection.
- A product with 6.65% DEET provided almost 2 hours of protection.
- Products with 4.75% DEET were both able to provide roughly 1 and a half hour of protection.

The American Academy of Pediatrics recognizes a concentration of 10% - 30% to be safe and suggests that the concentration be tailored to the amount of time the child will be outdoors.

Ticks are more active in May, June and July. Students who go outside in wooded areas should check themselves before returning to school or home. The ticks that transmit Lyme disease can occasionally transmit other tick-borne diseases as well.

If a tick is found on the skin and has been attached for less than 24 hours, there is only a small chance of having the disease transmitted to the student. However, it is still prudent to observe the area over time for rash.

### **Role of the School Nurse:**

- Educate staff and students about precautionary measure.
  - Avoid tick-infested areas.
  - Wear light colored long pants and long sleeve shirts when outdoors in brush or wooded areas.
  - Search body carefully for ticks after play in wooded, brushy area.
- If appropriate, provide information to parents about possible exposure to tick infested areas, prevention methods and use of repellents containing (DEET).
- Treat tick repellent as an over-the-counter medication (see Rule on Medication Administration).
- If tick is found, remove immediately using tweezers, pulling gently from skin.
  - Cleans the attachment site with soap and water.
  - Save the tick in a small clean leak-proof container with rubbing alcohol and label appropriately,
  - Inform parent.
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- Review the school's Integrated Pest Management plan.
- Report number of students diagnosed with Lyme disease to the Maine CDC.

### **Resources:**

CDC - <http://www.cdc.gov/ncidod/dvbid/lyme/index.htm>

Maine CDC - <http://www.maine.gov/dhhs/boh/Lyme%20Disease%20Update.htm>

Vector-borne Disease laboratory – <http://www.mmcri.org/lyme/meticks.html>

Googles image of lyme disease -

<http://images.google.com/images?q=lyme+disease&hl=en&lr=&rls=RNWE,RNWE:2004-20,RNWE:en&sa=X&oi=images&ct=title>

Article: GUIDELINES FROM THE INFECTIOUS DISEASES SOCIETY OF AMERICA, Practice Guidelines for the Treatment of Lyme Disease

[http://www.cdc.gov/ncidod/dvbid/lyme/IDSA\\_2000.pdf](http://www.cdc.gov/ncidod/dvbid/lyme/IDSA_2000.pdf)

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