

# MAKING A DIFFERENCE

Lyme Disease Prevention Education Guide

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## INTRODUCTION

Since 1992, the New Jersey State Department of Education and the Department of Health have been by law responsible for developing curriculum guidelines for teaching the prevention of Lyme disease. In addition to responding to curriculum needs, the department is aware that school staff who instruct students with the disease need additional training and strategies for alleviating physical and emotional discomfort.

This document provides districts with guidelines to develop a Lyme disease prevention education program within the existing comprehensive school health education framework and the learning and support strategies necessary to teach children affected by this disease. Districts may use this document to establish a Lyme disease prevention education program for students, staff, and community members.

The guide is essentially a two-part document. The first section provides classroom teachers with learning objectives and suggested activities. The section also contains background information on the prevention and transmission of Lyme disease. The second section is intended to serve those teachers who have a student with Lyme disease in their classes. Strategies are suggested that may help the infected child learn in a more positive and productive manner. A resource list is located at the end of the document.

A Lyme disease prevention education program should include basic information about the cause and transmission of the disease. Students should be taught prevention strategies to reduce personal risk while participating in outdoor activities. Additionally, students and their families need to recognize potential signs and symptoms of the disease. Early diagnosis and treatment must be emphasized. Finally, students need to develop sensitivity to the needs of others who are affected by this serious disease.

An additional purpose of this document is to provide school staff with information about Lyme disease so that potential symptoms may be recognized, and an appropriate referral made to parents and the school nurse. For those children infected, efforts can then be directed towards making the school experience a successful one while they are being treated for their illness. For those students not infected, efforts should be directed towards the implementation of prevention strategies and the development of empathy and sensitivity to those impacted by this serious disease.

A Lyme disease prevention education program can easily be implemented through the use of pamphlets, videos, and other materials available from the resources listed at the end of this document. It is imperative that parents also be educated about this disease. Cooperating with local health officials, the school district may develop awareness sessions for parents and community members. Districts should provide information annually to keep parents and children current and focused on the importance of prevention.

**Section One**  
**Lyme Disease Prevention**  
**Education**

### Lyme Disease Prevention Education

The school's comprehensive health education curriculum includes a wide range of topics aimed at developing healthy citizens. Education about health need not be restricted to a structured health education class. Thus, the Lyme Disease Prevention Guidelines are designed to be implemented in an integrated fashion across several grade levels and in several content areas. Teachers need to take advantage of that "teachable moment" -- such as a class trip to the woods -- to introduce and reinforce important concepts about this disease. Content can easily be incorporated into science through the study of insects and environmental control. In social studies, teachers can link disease incidence with the study of maps or with the evolution of diseases throughout history. The physical educator can continuously instruct students about preventive behaviors during outdoor activities and reinforce those principles by requiring that students dress appropriately for those activities. In health class, discussions can center on issues pertinent to the identification and treatment of the disease and sensitivity to those affected by Lyme disease.

In this fashion, information about Lyme disease can be presented to students, parents, and staff when it is meaningful and appropriate. Throughout the school experience, students can be given opportunities to increase their awareness and understanding of issues relevant to this disease. The following goals and objectives provide a framework for an effective prevention education program.

## GOALS

As a result of education about Lyme disease, students and their families will:

1. Be aware of ways to reduce personal risk.
2. Be familiar with the signs and symptoms of the disease.
3. Recognize the need for early diagnosis and treatment.
4. Be sensitive to the needs of those affected by Lyme disease.

## OBJECTIVES

Grades K-4

The student will be able to:

1. State that Lyme disease can affect anyone.
2. Describe how insects can spread diseases.
3. Recognize potentially harmful insects.
4. Relate the rules of safe play in wooded or grassy areas.
5. Outline procedures when a tick is found on the body.
6. Demonstrate how to do a tick check.
7. Discuss first aid measures for tick bites.
8. Demonstrate empathy and understanding for others impacted by Lyme disease.
9. List symptoms that may indicate illness and note that these symptoms should be reported to a trusted adult.

### OBJECTIVES

Grades 5-8

The student will be able to:

1. Outline the signs and symptoms of possible Lyme disease.
2. Describe appropriate measures to reduce risk during outdoor activities.
3. Discuss the treatment of Lyme disease and the importance of following physician's orders.
4. Describe personal and societal prevention efforts.
5. Outline the effects of any chronic disease, but specifically Lyme, on the individual and family.

### OBJECTIVES

Grades 9-12

The student will be able to:

1. Analyze current methods of prevention in the community and state.
2. Identify ways to assist and support individuals and families with Lyme disease.
3. Outline the short- and long-term effects of chronic illness such as Lyme on the individual, the family, and the health care system.
4. Demonstrate appropriate first aid measures for tick removal.
5. Identify the signs and symptoms of Lyme disease and compare with other serious illnesses.



### SUGGESTED ACTIVITIES

Activities have been written across grade spans. Information about Lyme disease may be taught by the elementary classroom teacher, the health specialist, the physical education instructor or coach, the science teacher, or by the school nurse. Teachers need not utilize every activity; rather, the program should be coordinated across the grades to ensure that all of the program objectives are met. Some of the activities are specific to Lyme disease. Other activities are more generic and permit the instructor to incorporate information on Lyme disease into discussions on health care, disease incidence, or environmental health. In any case, the activities are representative of instructional strategies being used successfully in many New Jersey schools. Districts are encouraged to adapt the Lyme Disease Prevention Education Guide to meet the needs of their community, based on Lyme disease statistics and incidence determined in consultation with the local or county health department.

## SUGGESTED ACTIVITIES

Grades K-4

1. Compare various insects
  - Size and color
  - Habitat
  - Benefits of insects to the environment
  - Warnings about specific insects
2. Demonstrate how small the tick can be by using items like poppy-seeds or ground pepper to simulate the insect; have students do a tick-check using the "fake" insects.
3. Dress For Play Day: Have students dress appropriately for play in various venues.
4. Invite the school nurse to class to talk about first aid for tick removal.
5. Invite the school nurse or doctor to class to discuss the signs of potential illness and when symptoms should be reported to a trusted adult.
6. Make a class chart on rules of safe play, emphasizing appropriate attire and tick checks.
7. Do tick checks upon returning from outdoor activities.
8. Show the video "Lyme Disease Facts for Kids."
9. Celebrate National Lyme Disease Awareness Week with poster contests, assembly programs, and parent information sessions.
10. Have a person with Lyme disease talk to the class about the disease and prevention of it.

## SUGGESTED ACTIVITIES

Grades 5-8

1. Using a time-line/body-line, trace the effects of Lyme disease from tick bite to symptoms.
2. Discuss how treatment can alter the disease time-line.
3. Invite a pharmacist to discuss the importance of antibiotic therapy.
4. Compare Lyme disease with other diseases.
5. Develop a personal protection plan for outdoor activities.
6. Present prevention materials as part of environmental education and prior to all campouts, hikes, outdoor field trips, and nature studies.
7. Encourage students to develop a commercial or advertisement for personal protection measures.
8. View and discuss "Lyme Disease Facts for Kids."
9. Suggest that students write an article for a local newspaper on Lyme disease prevention.
10. Feature a guest speaker
  - A Lyme disease patient;
  - A physician/nurse; or
  - An environmental specialist.
11. Develop a student newsletter or educational program for the community for National Lyme Disease Awareness Week.
12. Examine and compare various methods of environmental control of insects that may transmit diseases such as Lyme.

## SUGGESTED ACTIVITIES

### Grades 9-12

1. Contact state parks, state agencies, and local health departments to learn about their efforts to control the spread of insect-borne diseases.
2. Identify national trends and Lyme disease statistics.
3. Research the incidence of the disease in the local community/county.
4. Develop a community education plan for Lyme disease. Contact local community officials to present the plan.
5. Assist families with the disease through fund-raising, assistance with child care, or other community service.
6. Invite an insurance representative to discuss the effects of long-term illness on family income and insurance coverage.
7. Compare the signs/symptoms of Lyme with other similar illnesses and discuss the differences/similarities in treatment.
8. Encourage students to create a play, skit, musical, or video for elementary students on Lyme disease prevention.
9. Team older students with younger students on a field trip, demonstrating proper attire and tick checks.
10. Practice simulated first-aid for tick removal.
11. View and discuss "Lyme Disease: What You Should Know."
12. Plan school or community activities for National Lyme Disease Awareness Week.

## Are animals affected by Lyme disease?

Dogs were the first domestic animals known to be affected by Lyme disease. Where Lyme disease is common, a large percentage of dogs can be expected to show significant levels of antibodies to the Lyme disease spirochete. Symptoms of Lyme disease in dogs include loss of appetite, lack of activity, and lameness. Cats, horses, and cattle are among the domesticated animals also known to be affected by Lyme disease. Little is known about the effects of Lyme disease on wildlife.

## How can Lyme disease be prevented or controlled?

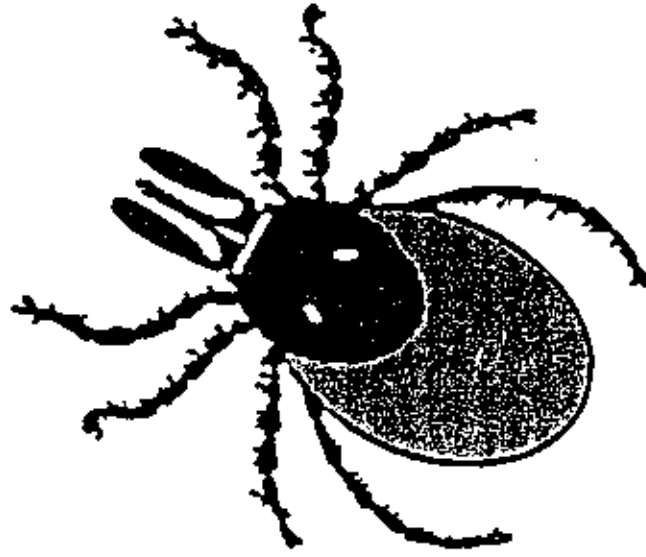
The best way to control Lyme disease is to avoid tick-infested areas. If this is not possible, you should consider dressing appropriately when going into potentially tick-infested areas. Wearing light-colored clothing, for example, will make it easier to observe ticks. By tucking pants legs into socks, ticks will be forced to crawl on the outside of clothing where they may be more easily observed.

Protection may be increased by the use of personal repellents, which may be used on skin or clothing, or clothing repellents that should only be applied to clothing. Be certain to follow labeling directions carefully. There have been several reports of generalized seizures among individuals who used personal repellents containing DEET (N,N-diethyl-m-toluamide) applied directly to skin. The possibility of adverse reactions may be minimized by applying the repellent sparingly and by avoiding the use of high-concentration products on exposed skin, particularly in children.

Risk of infection can be reduced further by examining yourself, family members, and pets when returning from tick-infested areas and removing ticks before they have a chance to feed. Ticks require many hours to insert their mouthparts and begin the feeding process. Ticks that are removed promptly are unlikely to transmit the infection.

Ticks that are embedded in skin should only be removed by grasping the tick with tweezers as close to the skin as possible and applying firm, steady backward pressure until the tick is

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# IN NEW JERSEY

dislodged. Removal of embedded ticks by use of noxious chemicals or by burning will not work and may cause injury to the skin. After the tick is removed, infection may be avoided by washing the area thoroughly. Removed ticks may be saved for identification, but this procedure is not very useful in diagnosing Lyme disease. If you develop signs and symptoms consistent with Lyme disease, contact your physician.

## Are effective tick control methods currently available?

Effective methods to control deer ticks in every situation have not been developed. Research conducted by the New Jersey State Department of Health has shown that applications of liquid and granular formulations of several general-use insecticides can provide excellent control of all host-seeking stages of the deer tick. However, the type of insecticide formulation to use, timing, and placement of the application are critical to successful control and applications are only recommended for areas known to be infested with infected deer ticks. Because of the complex nature of tick ecology and insecticide application regulations, chemical control of the deer tick should be left to licensed professional pesticide applicators. For further information on tick control, contact the Rutgers Cooperative Extension Service or your County Agricultural Agent.

For further information regarding the signs and symptoms of Lyme disease, contact your physician.

All other questions regarding Lyme disease should be directed to your local health department or call 800-792-8831.



NEW JERSEY  
DEPARTMENT  
OF  
HEALTH

**Section Two**  
**Learning and Support**  
**Strategies for**  
**Students with**  
**Lyme Disease**

### Learning and Support Strategies for Students with Lyme Disease

Children with Lyme disease may exhibit a wide range of signs and symptoms. Even after treatment and apparent remission, symptoms may reappear. Every student will not experience all of these symptoms. Some students may, in fact, experience few. Others may experience significant problems which require child study team assistance. In any case, school staff must work closely with the child's parents and health-care providers to facilitate a positive learning experience. School personnel need to be aware of the many presenting symptoms of the disease so that students and staff may be appropriately referred for diagnosis and treatment.

School staff should keep the following three factors in mind when dealing with any child with a chronic illness:

1. Teachers are the primary observers of students and are best able to note changes in a student's health, behavior, or school performance. Specialists in health and education need to recognize and reinforce the role of the classroom teacher and develop collaborative efforts to facilitate optimal learning for the student.
2. Relevant information about a student's behavior, appearance, or activity should be put in writing. Teacher observations, assessments, and communications need to be shared with the appropriate school personnel and the student's parent/guardian. Accurate and timely feedback is necessary to facilitate the student's learning. Such documentation will facilitate the development of a individualized health and education plan. The school nurse is a key player in the development of this plan.
3. Take health factors into account. Physical and emotional health are central to a student's development and educational success. Whenever a problem presents, review the student's health status and current health practices. Collaboration and communication between the teacher, the school nurse, the student's physician, the family, and the student is essential to a successful school experience.

Whether Lyme disease presents as an acute or chronic condition, children often respond in varied ways. Some children, afraid of rejection, deny their illness. In some cases, students may use the disease as an excuse to be labeled "bad" or "lazy." Other children, confronted with a parent or sibling with Lyme, assume the role of protector. Because Lyme disease may be difficult to diagnose, children may present to school staff a variety of health complaints that cannot be easily remedied. These children may be viewed as school phobic when in fact, their complaints are valid. In any case, children with Lyme disease may experience mood swings, exacerbated by the normal emotional fluctuations experienced by their healthy counterparts. Counseling and support services may assist students with Lyme disease to deal with the emotional problems they experience.

In school, teachers often note that students with Lyme disease forget things --classes, pens, textbooks. These students may have problems

organizing work, completing assignments, and may become easily frustrated as a result. Maintaining frequent contact with parents regarding behavior, health habits, and academic performance is essential. Some students may require a tutor, especially after a long absence.

The following chart outlines some of the more common symptoms and problems experienced by individuals with Lyme disease and presents suggested classroom actions to facilitate learning. Such strategies should be noted on an individualized health care plan developed in collaboration with the student's health care provider. Appropriate follow-up and communication are vital to the successful implementation of these strategies. Periodic review and revision of the plan is essential during the course of the disease. Many of the symptoms presented may be exhibited by students with diseases other than Lyme disease. The support strategies outlined may be helpful for all students who present these problems regardless of diagnosis.



**Physical Effects and Classroom Strategies**

<b><u>Effects</u></b>	<b><u>Strategies</u></b>
<b>A. Fatigue/Lethargy</b>	<ol style="list-style-type: none"><li>1. Allow frequent rest periods in a quiet room.</li><li>2. Provide information in short intervals.</li><li>3. Maintain frequent contact with family regarding sleep/rest needs and practices.</li><li>4. Shorten the school day.</li><li>5. Provide home instruction.</li></ol>
<b>B. Headaches</b>	<ol style="list-style-type: none"><li>1. Permit rest in a quiet, dimly lighted room.</li><li>2. Provide for the immediate use of prescribed analgesics.</li><li>3. Decrease noise levels.</li><li>4. Excuse from classes.</li><li>5. Limit stimuli, (loud noise, bright lights, chaotic activity).</li></ol>
<b>C. Muscle/Joint Pain</b>  Neck stiffness Decreased muscle tone  Arthritic changes	<ol style="list-style-type: none"><li>1. Promote frequent changes of body position.</li><li>2. Facilitate stretching and massage.</li><li>3. Provide adaptive physical education.</li><li>4. Provide physical and occupational therapy, as prescribed.</li><li>5. Limit writing to short intervals.</li><li>6. Allow student to audiotape or videotape notes.</li><li>7. Permit the use of a computer.</li><li>8. Offer medication as prescribed.</li></ol>
<b>D. Loss of Appetite</b> Nausea/vomiting	<ol style="list-style-type: none"><li>1. Allow nutritious snacks.</li><li>2. Offer frequent liquids.</li><li>3. Provide a pleasant atmosphere with decreased noise and subdued light.</li><li>4. Promote rest after eating.</li><li>5. Coordinate food intake with the administration of medication.</li><li>6. Monitor weight loss/gain.</li></ol>
<b>E. Visual/Eye Disturbances</b> Light sensitivity  Double vision Vision loss	<ol style="list-style-type: none"><li>1. Establish preferential seating.</li><li>2. Maintain subdued lighting when possible.</li><li>3. Seat away from bright sunlight.</li><li>4. Screen frequently for vision changes.</li><li>5. Ensure the student wears prescribed eyewear.</li><li>6. Maximize rest opportunities.</li><li>7. Provide large print materials.</li><li>8. Administer prescribed medication.</li><li>9. Protect eyes from dust and foreign particles.</li></ol>

**F. Memory Problems/and  
Cognitive Changes**

Concentration  
Memory loss

1. Offer shorter, more focused lessons.
2. Use memory enhancement strategies.
3. Involve parents in lessons.
4. Use audio or video tapes for reinforcement at home.
5. Refer the student for home tutoring or CST interventions.

**G. Nerve Disorders**

Cranial nerve involvement  
Facial paralysis  
Distortion of facial muscles  
Numbness of face/tongue  
Eye problems—lack of tears,  
photosensitivity  
Speech problems  
Difficulty chewing and  
swallowing  
Pain  
Sense of smell diminished

Peripheral nerve involvement

Tingling  
Numbness  
Weakness  
Burning  
Pain

1. Provide emotional support and counseling services to enhance self-image.
2. Protect the involved eye from dust since tearing and blink reflex may be diminished.
3. Encourage the use of protective eyewear.
4. Permit the use of sunglasses.
5. Administer prescribed analgesics.
6. Avoid sudden temperature changes in classroom especially drafts.
7. Facilitate exercises or treatments.
8. Offer speech therapy.
9. Provide assistance with meals.
10. Permit frequent changes in body position.
11. Assist student to dress appropriately for the weather.
12. Observe changes in fine motor skills.
13. Accommodate writing activities.
14. Provide adaptive physical education.
15. Provide occupational therapy as prescribed.
16. Use manipulatives to encourage fine motor control.

**H. Emotional Changes**

Depression  
Mood swings  
Altered body image  
Changes in activity  
levels—lethargy to  
hyperactivity  
Hormonal influences

1. Be sensitive to mood changes and correlate emotional changes with activities (decrease/increase/pace).
2. Recognize the child's frustration level.
3. Provide rest periods.
4. Provide frequent positive reinforcement.
5. Maintain close contact with family.
6. Refer for counseling; maintain contact, as appropriate, with support services.
7. Maintain careful observation and documentation.
8. Assist in the development of empathy and sensitivity among classmates.
9. Request help from the Child Study Team or Pupil Assistance Committee.
10. Administer medication, as indicated.

## Appendix

### Lyme Disease Prevention: Field Trips

Teachers should review the following guidelines with students, staff, and parents prior to field trips that venture into areas of high risk for Lyme disease. Such areas might include parks, forests, fields, campgrounds and other similar areas. If in doubt, check with the local or county health department for more information.

#### Tips

1. Wear bright colored clothing so that tick can be easily observed and removed.
2. Wear long sleeved shirts, long pants tucked into socks, and closed shoes.
3. Repellants are effective against ticks, especially products that contain deet. Follow the manufacturer's directions carefully.
4. Immediately after going indoors, inspect clothes and exposed body areas.
5. Parents should "tick check" their child upon arrival home from school.

For more information, contact the Rutgers University Cooperative Extension Office located in your county. Contact information can be found in the resource section of this guide.