BROOKHAVEN NATIONAL LABORATORY

Tick Disease Prevention Strategy Overview

1. Modify the environment to make it unfavorable for ticks and hosts *(mowing, shrub/brush removal, removal of debris for mice nesting)* [a]
2. Limit the range of tick habitats to areas not occupied by humans *(mow or treat frequently occupied areas or place barriers to access)* [a]
3. Inform people of the range of ticks so they voluntarily avoid tick areas when possible *(posting)* [a]
4. Inform people of the risk factors and control measures to use when they enter tick areas *(training)* [b]
5. Prevent ticks from getting on people who enter tick habitats *(repellants)* [e]
6. Prevent ticks from attaching to people *(clothing barriers)* [e]
7. Prevent ticks from feeding long enough to transfer disease *(skin examination after exposure)* [e]
8. Prevent disease organism transfer to people *(Remove attached ticks promptly)* [c, e]
9. Test ticks that have attached and fed on people for disease organisms *(PCR of tick body)* [b]
10. Test people for the presence of disease organisms after a tick bite *(Blood & body fluids testing)* [d]

a. BNL provided by Plant Engineering (x-2468)
b. BNL provided by SHSD (Bldg 120; x-3066)
c. BNL provided by OMC (x-3670)
d. Provided by private physician
e. Provided by self

Tick Habitats

	Habitat	Risk of Attachment
Larvae and Nymphs	Found primarily at the edge of wooded areas and within woods. Seek hosts in the leaf litter, un-mown grass and low shrubs.	Attach to the body at the shoe and sock to knee level. Continuous clothing barrier at sock to knee level is essential.
Adults	Found primarily at the edge of wooded areas and within woods. Seek hosts in un-mown grass and low shrubs. Can be found in mown grass at the edge of wooded areas (up to 30 feet).	Attach to the body at the shoe and sock to waist level. Continuous clothing barrier at sock to waist level is essential.

Time of Day Patterns

Time of Day	Ticks are most active in the early morning and early evening. Less active in the heat of the day.	Ticks are most active in shaded areas rather than direct sunlit areas. More active on days after rain than during droughts.
Time of Year	Larvae active in fall (September-October). Nymphs are active in summer (June through early September).	Adults are active in Spring (March-early May) and Fall (September- early November). Less active in summer.

Life Stages of the Deer Tick

Larvae (Fall)	**Nymph** (Summer) Disease Carrier	**Adult Male** (Spring & Fall) Disease Carrier	**Adult Female** (Spring & Fall) Disease Carrier

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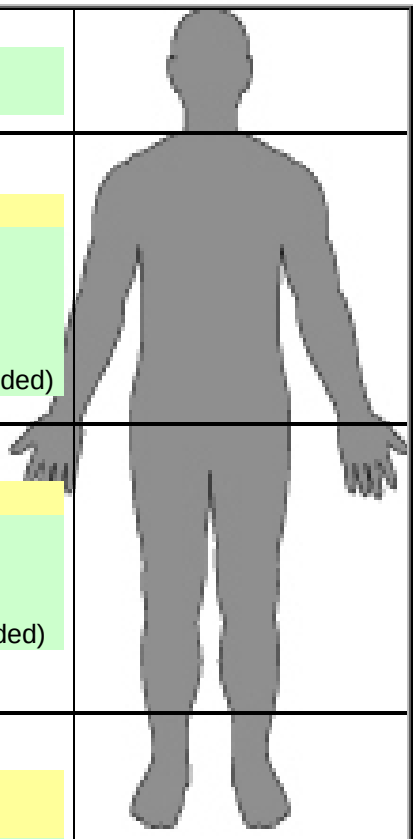
Personal Protective Clothing to Prevent/Reduce Chance of Tick Bites

Color Code	
Yellow	Essential - Minimum PPE level for entry into wooded areas and tick habitat
Green	Optional clothing/PPE that enhances protection. Replaces [Essential] with additional protection
Red	**High Risk- Clothing that presents an unacceptable risk**

HEAD
Light colored hat (Recommended)
Spray neck with DEET(Recommended)



UPPER BODY
Light colored, short sleeve shirt (Essential)
Light colored, Long sleeve shirt (Recommended)
Light colored, nylon or polyester wind jacket (Recommended)
Tyvek® or *Kleenguard*® coverall (Best Protection)
Spray arms with *DEET*(Recommended)
Spraying external surfaces of clothing with *Permethrin* (Recommended)

LOWER BODY
Light colored, long pants (Essential)
Light colored, nylon or polyester wind pants (Recommended)
PVC rain suit (Better Alternative)
Tyvek® or *Kleenguard*® coverall (Best Protection)
Spraying external surfacesof clothing with *Permethrin* (Recommended)
Short pants (Avoid)

FEET
White socks (Essential)
Pants legs tucked into socks (i.e. bloused) (Essential)
Socks taped to pants leg (Better Alternative)
Nylon hose or gaiters bridging shoes to pants (Better Alternative)
Rubber boots taped to pants (Better Alternative)
Spraying external surfaces of clothing with *Permethrin* (Recommended)
Sandals or open toed shoes (Avoid)

Tick Repelleant Sprays

DEET (skin & clothing)
- BNL Stock# K70766

Can be applied to clothes and bare skin immediately before entering tick areas. This product only repels ticks.

Permethrin (clothing only)
- BNL Stock# K70764

Can only be applied to clothing and allowed to dry. Do not spray on skin. This product repels and kills ticks.

Sources of more information & assistance at BNL

Habitat control (mowing and pesticide spraying)	Plant Engineering Division	Michael Pankowski Building 326, x-8235
Host control (deer/mice)	Environmental Services Division	Timothy Green Building 120, x-3091
Tick Identification (microscopic evaluation of ticks)	Safety & Health Services Division	Robert Selvey Building 120, x-3066
Test ticks for microorganisms (PCR evaluation of ticks that have feed on people)		
Tick removal during business hours (removal of attached ticks)	Occupational Medicine Clinic	Building 490, X-3670
Medical Advise (consultation on disease testing and treatment)		
Training (web classes, lectures, recorded presentations)	*Office of Training and Qualification (http://training.bnl.gov/demo/courses/index.html)* Lyme Disease and Tick/Chigger Bite Prevention (TQ-LYME1) [PowerPoint presentation]	
	BNL-SHSD web page (http://www.bnl.gov/esh/shsd/) Link to Ticks and Chigger Prevention [Streaming Video- 1 hour presentation]	
	Scheduling live presentations on tick-borne disease prevention: Robert Selvey Building 120 x-3066	
Programs (BNL requirements and guidance)	SBMS Subject Area: *Natural Hazards in the Environment* *https://sbms.bnl.gov/sbmsearch/subjarea/125/125_SA.cfm?parentID=125* *SBMS Exhibit: Natural Hazards Fact Sheets* *https://sbms.bnl.gov/sbmsearch/subjarea/125/125_SA.cfm?parentID=125*	

Examples of Warning Postings at BNL

To have an area posted with warnings signs, Building Manager contact x-2468

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Ticks found at BNL

Deer Tick	Dog Tick	Lone Star Tick
 **Adult Female**	 **Adult Female**	 **Adult Female**
 **Adult Male**	 **Adult Male**	 **Adult Male**
 **Nymph**	 **Nymph**	 **Nymph**
 **Larvae**	 **Larvae**	 **Larvae**