

## **Occupational Tick-Borne Disease Prevention and Workplace Job Hazard Assessment for Personal Protective Equipment**

Brian Sauvageau, RS, Occupational Hygienist, Compliance Safety and Health Officer  
State of Connecticut Department of Labor – Occupational Safety and Health Division.

The goal of this article is to bring a higher level of awareness to employers and employees of occupational exposures to tick-borne disease (TBD) in Connecticut. It provides guidance and direction on prevention and the performance of a workplace **Job Hazard Assessment** for workplace exposures to tick bites. Preventing tick bites is of the utmost importance in preventing disease.

Ticks in Connecticut carry a variety of disease causing agents including bacteria, protozoa, rickettsia, and now, a new and emerging viral infection, the Powassan Virus (POWV)<sup>1</sup>. The diseases known to have been transmitted in Connecticut are: Lyme disease (*Borrelia burgdorferi*), Human granulocytic anaplasmosis (*Anaplasma phagocytophilum*), Babesiosis (*Babesia microti*), Ehrlichiosis (*Ehrlichia chaffeensis*), Rocky Mountain spotted fever (*Rickettsia rickettsii*), Powassan encephalitis (POWV), and hard tick relapsing fever (*Borrelia miyamotoi*). While a number of human cases of some of these diseases in Connecticut are low, infection may have serious consequences. Co-infections with multiple disease agents are also being reported<sup>2</sup>.

The epidemiology and modalities of these communicable disease pathogens, the predominant tick vector, *Ixodes scapularis*, aka "Deer Tick" and "Blacklegged Tick," and other vector competent ticks will not be discussed. Education and prevention information needed for employers, Municipal Chief Executives, Chief Operating Officers, School Superintendents, Public Works Directors, Facilities, Grounds, and Property Managers, and Agency Department Heads can be found in the links and references provided within. The reader is encouraged to give this document the widest dissemination in all places of employment where a potential hazard of tick bite exposures may occur.

In the State of Connecticut, it has become generally accepted that occupational exposure to tick bites is a known and recognized hazard, which places employees at risk of becoming infected with TBD. Recent research and publications indicate that tick populations and the diseases they transmit are on the rise in Connecticut<sup>3</sup>. It can be stated with confidence that without preventive measures in tick infested areas, contracting a tick-borne disease in Connecticut, particularly Lyme disease, may be considered a natural and probable result.

Citizens and employees within the state of Connecticut should have access to the most current TBD prevention information available. The CT Department of Public Health (DPH), the Department of Energy and Environmental Protection, (DEEP), the Connecticut Agricultural Experimentation Station (CAES)<sup>4,5</sup>, the Centers for Disease Control and Prevention (CDC), the National Institute of Occupational Safety and Health (NIOSH), the Occupational Safety and Health Administration (OSHA), and our local health departments and health districts have long been disseminating information and

guidance on TBD and prevention. Information on the diseases, tick ecology, habitat, and prevention are posted on-line and available through printed publications. There is no lack of prevention information.

TBD prevention recommendations are generally directed toward persons who engage in leisure and outdoor life activities that may expose them to tick bites in yards, in the woods, parks, and forests during activities such as with children at play, yard work and gardening, wood cutting, property maintenance, hiking, fishing hunting, camping, picnicking, trail bike riding, animal husbandry and dog walking. Surveys have shown that 25.5% of residents in New England use a repellent and 43.2% do tick checks, while 35.9% do nothing<sup>6</sup>.

However, in the occupational setting, we are in an employer/employee, master/servant relationship. Potential exposures are not matters of choice or leisure. Where occupational exposures occur TBD prevention measures can no longer be considered recommendations or advisory in nature. In many workplaces, exposure to tick bites appear to be viewed as inconsequential, preventive measures proceed haphazardly, without logical sequence, and with disregard to the character, nature, and the adverse and debilitating health effects of these communicable disease transmissions.

In Connecticut thousands of private and public sector employees in outdoor workplaces experience daily casual exposures to the risks of tick bites, such as for example:

- Line, utility, and tree workers
- Public Works Operators and Maintainers
- Department of Transportation employees
- Facilities maintenance, grounds, and landscaping workers
- Parks and recreation employees
- Animal control officers
- Law enforcement officers and K-9 units
- Wildlife and forestry workers
- Agricultural workers
- Land use and surveyors
- Site development and construction workers.
- Firefighters
- Any employee engaged in outdoor field and woodland operations.

Where it is found that work cannot be avoided in tick infested areas a Workplace Hazard Assessment is a requirement for State of Connecticut public sector employers. CONN-OSHA will begin to include tick bite disease prevention and control through its Safety and Health Consultation Program, Compliance Assistance Program, and during compliance inspections with the enforcement of the Personal Protective Equipment (PPE) General Industry Standard, section 1910.132 of the CONN-OSHA regulations.

[https://www.osha.gov/pls/oshaweb/owadis.show\\_document?p\\_table=STANDARDS&p\\_id=9777](https://www.osha.gov/pls/oshaweb/owadis.show_document?p_table=STANDARDS&p_id=9777).

A Workplace Hazard Assessment aka, Hazard Analysis is an OSHA directed workplace certification and technique that focuses on job tasks as a way to identify hazards before they occur, and the relationship between the worker, task, tools, and the work environment. The assessment identifies uncontrolled hazards to take steps to eliminate or reduce hazards by avoidance. Where exposure avoidance is not practical or possible, selections of Personal Protective Equipment (PPE) are made, and employee training is implemented as a new element to the employer's safety and health program.

The general requirements of the PPE standard include protection of the body and skin from exposure to mechanical injury or agents capable of causing injury, disease or impairment of the body through absorption, inhalation or physical contact.

Each employer is required to assess the workplace to determine if hazards are present or likely to be present which would necessitate the use of PPE and be able to certify that the assessment was done. If hazards are present or likely to be present the employer shall select and require the affected employees use the type of PPE that will protect the employee from the hazards identified. After selection the employer shall communicate this selection to the employee and provide training in the use of the PPE, the exposure hazards prevented, when it is necessary, how to properly use, adjust, or wear it. See Table I attached.

Training must be effective in order to convey knowledge so that each employee demonstrates understanding and ability to properly use the PPE before being allowed to perform the work requiring the use of the PPE.

Implementing some or all of the measures can reduce tick exposures and the risks of contracting TBD's. Implementing a robust TBD prevention program including training, policies and procedures, habitat and ecology awareness, high vs. low tick density areas, PPE and the use of the wide variety of repellants available will provide a significant reduction of exposures and convey confidence that protective measures are being taken. All of these measures are simple and incorporate a minimum resource of time and are low in fiscal costs where the initial, hidden, and long term costs of a tick borne disease infection can be high and life threatening.

#### References:

1. CDC, Morbidity and Mortality Weekly Report MMWR /April 21, 2017 / Vol. 66 / No. 15. Notes from the Field "Powassan Virus Disease in an Infant - Connecticut 2016".
2. Connecticut Department of Public Health, Epidemiology and Emerging Infections Program, "Other Tick-Bourne Disease," Connecticut Department of Public Health.
3. Connecticut Agricultural Experimentation Station, Press Release, Monday, April 17, 2017, "Higher Tick Abundance and Infection with Lyme Disease observed Statewide."

4. Stafford, K. C. III, "The Prevention of Tick Bite and Tick-Borne Diseases: Tick Checks and the Use of Insect Repellents", Department of Entomology/Center for Vector Biology and Zoonotic Diseases, Connecticut Agricultural Experimentation Station.
5. Safford, K. C. III, "Tick Management Handbook, An integrated guide for home owners, pest control operators, and public health officials for prevention of tick-associated disease." Bulletin No. 1010. Published Fall 2007 by the Connecticut Agricultural Experimentation Station (CAES), Revised Edition.
6. Hook, S.A., C. A. Nelson, and P. S. Mead. 2015. U.S. public's experience with ticks and tick-borne diseases: results from national HealthStyles surveys. *Ticks and tick-borne disease* 6:483-488.

Resource Links:

[www.cdc.gov/ticks/diseases/](http://www.cdc.gov/ticks/diseases/)

[www.cdc.gov/niosh/topics/tick-borne/](http://www.cdc.gov/niosh/topics/tick-borne/)

<http://www.ct.gov/caes/lib/caes/documents/publications/bulletins/b1010.pdf>

<http://www.ct.gov/dph/cwp/view.asp?a=3136&q=528408>

**Table I**

**Town of Anywhere, CT**

**PERSONAL PROTECTIVE EQUIPMENT**

**JOB HAZARD ASSESSMENT CHECKLIST**

**(Example)**

Department(s): Public Works Road Division, Facilities and Grounds Division, Tree Division

Job Title(s): PWD Director, Road Forman, Grounds Foreman, Equipment Operator, Maintainer(s) I, II, and III

Job Task(s): Street-side / roadside brush control, residential street-side leaf pick up, catch basin maintenance, tree work, grounds maintenance, field and lawn care.

Location(s): Streets and roads, fields, woods, town grounds, parks, and recreation fields.

Tools and Equipment: Motor vehicles, trucks and trailers, gas street saw, gas chain saws, weed trimmer, leaf blower, walk-behind lawn mowers, power take-off tractor, wood chipper, hand power tools, hand garden tools.

**BODY PROTECTION (29 CFR 1910.132)**

- |  |     |    |
|--|-----|----|
| 1. Risk of Potential Hazards to the Torso,   | Yes | No |
| 2. Risk of tick bites and tick-borne disease | Yes | No |

**Locations:** Areas having tall grass, leaf litter, light or heavy brush, Japanese barberry, in proximity to stone walls, in the vicinity of nut throwing trees, seed throwing bush and plants, areas where mice, small rodents, deer and ticks are known or suspected.

**BODY PROTECTION REQUIRED:**

Light colored long sleeved shirt, light colored long pants. Light colored coveralls are best. Socks tucked over pant legs offer the best protection, or pant legs bloused, strapped, taped over long socks without any exposed skin. Use employer selected and provided repellents labeled for ticks having a minimum of 25% to 30% or greater DEET. Permethrin treated work cloths provide excellent protection. Cover hair with a hat.

Follow NIOSH recommendations. See: [www.cdc.gov/niosh/topics/tick-borne/](http://www.cdc.gov/niosh/topics/tick-borne/)

**Note:**

- Initial "Tick-Borne Disease Prevention" training record required before tick exposure hazards/ work assignments commence.
- Annual TBD prevention refresher training record recommended.
- Report all incidents of tick bites
- Avoid staying in tick prevention PPE work clothing after the work is completed.
- Do not go home in work clothing after leaving tick infested areas.
- Perform self-checks, shower after the work, keep work clothes separate from street cloths.

- **Wash work clothes separately. Do not re-wear without washing.**
- **When possible, schedule/ direct duties and operations when seasonal tick populations may be low**

Assessment Conducted by:

\_\_\_\_\_  
Signature of Assessor:

\_\_\_\_\_  
Date of Assessment: