TICKS, TICK-BORNE PATHOGENS AND TICK-BITE PREVENTION IN SUFFOLK COUNTY

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Ticks of Medical Importance

- Blacklegged or Deer Tick
  - *Ixodes scapularis* (*Ixodes dammini*)
- American Dog Tick
  - *Dermacentor variabilis*
- Lone Star Tick
  - *Amblyomma americanum*
Blacklegged or Deer Tick
(*Ixodes scapularis*)
Questing Tick
Blood Feeding
Tick Life Cycle – 2 Year

- Eggs
- Nymph
- Eggs
- Larva
- Adults

Risk of human infection greatest in late spring and summer

CDC/DVBID
Activity of Blacklegged or Deer Tick (*Ixodes scapularis*)

- **Adults**
- **Larvae**
- **Nymphs**

Month:
- Jan
- Feb
- Mar
- Apr
- May
- Jun
- Jul
- Aug
- Sep
- Oct
- Nov
- Dec
Tick-Borne Pathogens Associated with Blacklegged/Deer Ticks

- Lyme Disease, Lyme Borreliosis
  - *Borrelia burgdorferi*

- Human Granulocytic Anaplasmosis (HGA)
  - *Anaplasma phagocytophilum*

- Babesiosis
  - *Babesia microti*

- Powassan Virus or Deer Tick Virus
Coinfection of pathogens for Lyme Disease
Anaplasmosis
Babesiosis
may occur from one tick bite
White-Footed Mouse
*Peromyscus leucopus*

White-Tailed Deer
*Odocoileus virginianus*
American Dog Ticks
(*Dermacentor variabilis*)

Male

Female
Activity of American Dog Tick (*Dermacentor variabilis*)

Larval & nymphal American Dog ticks do not bite humans and therefore are not indicated here.
Tick-Borne Pathogens Associated with American Dog Ticks

- Rocky Mountain Spotted Fever
- *Rickettsia rickettsii*
Meadow Vole
*Microtus pennsylvaniaicus*

Red Fox
*Vulpes vulpes*

Lone Star Ticks
(*Amblyomma americanum*)

- **Larva**
- **Nymph**
- **Male**
- **Female**

TickEncounter Resource Center
Activity of Lone Star Tick \textit{(Amblyomma americanum)}

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<th>Month</th>
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<th>Larvae</th>
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“Chiggers”
Larval Chigger vs. Larval Tick

http://science.howstuffworks.com/zooology/insects-arachnids/chigger2.htm

http://www.aldf.com/Lonestarposter.shtml
Chigger Feeding

http://en.wikipedia.org/wiki/Trombiculidae
Tick-Borne Pathogens Associated with Lone Star Ticks

- Human Monocytic Ehrlichiosis (HME)
  - *Ehrlichia chaffeensis*

- Alpha-Gal Meat Allergy
White-Tailed Deer

*Odocoileus virginianus*
Incidence of Tick-Borne Diseases

**Lyme Disease Cases**

- 2009: 600
- 2010: 700
- 2011: 750
- 2012: 700
- 2013: 650
- 2014: 600
- 2015: 550
- 2016: 500
- 2017: 450

**Babesiosis Cases**

- 2009: 200
- 2010: 250
- 2011: 300
- 2012: 250
- 2013: 200
- 2014: 150
- 2015: 100
- 2016: 200
- 2017: 300

**Anaplasmosis Cases**

- 2009: 20
- 2010: 30
- 2011: 40
- 2012: 50
- 2013: 60
- 2014: 50
- 2015: 40
- 2016: 30
- 2017: 20

**Ehrlichiosis Cases**

- 2009: 5
- 2010: 10
- 2011: 15
- 2012: 20
- 2013: 25
- 2014: 30
- 2015: 35
- 2016: 40
- 2017: 45
Tick Habitat

- Blacklegged (Deer) Tick
  - Woodlands
- American Dog Tick
  - Fields
- Lone Star Tick
  - Woodlands, Secondary Growth, Disturbed Areas
Prevention of Tick Bites

- Avoid tick habitats if possible
  - Avoid sitting directly on the ground
  - Walk in the center of footpaths
- Check frequently for ticks
  - Remove ticks promptly from clothing or body
- Wear/tuck shirts, long pants, and socks
- Consider using a tick repellent
- Use a clothes dryer to kill ticks
  - 10 minutes
  - Don’t wash first
Tick and Mosquito Repellents recommended by CDC

- Permethrin – Clothing Only
- DEET
- Picaridin
- Oil of lemon eucalyptus (OLE or PMD)
- IR3535
- Follow label directions

https://www.epa.gov/insect-repellents/find-repellent-right-you
Tick Mouthparts
Proper Tick Removal

Pull tick slowly up and away from the skin

Hypostome

Barbs

Tweezers

http://www.health.harvard.edu
Tick Removal

Remove the tick as soon as possible.

Don’t squeeze the tick.

Place tick in rubbing alcohol or tape it to a 3x5 card.

Label with date and location of bite.
Further Information

- SBSH Tick-Borne Disease Resource Center
  - Medical Questions (10am-2pm), Tick Kits
  - (631) 726-TICK (8425)

- Suffolk County Department of Health Services
  - (631) 787-2200
  - Tick.Prevention@suffolkcountyny.gov
  - Suffolk County Website

- CDC and NYSDOH Websites
MAN AGAINST NATURE