What is a tickborne disease and why should you care about it?

• People can get a tickborne disease when they are bitten by a tick that is infected with a disease agent

• The number of people getting tickborne diseases is increasing throughout the United States, including Minnesota

• Personal protection methods can help keep you safe from tick bites and tickborne diseases while enjoying healthy outdoor activities
Goals of Presentation

- Be able to recognize ticks of public health concern in MN
- Be aware of tickborne diseases
- Recognize basic signs and symptoms
- Seek early diagnosis and treatment
- Know when and where tickborne disease risk is highest
- Practice prevention methods
- Know who to contact for more information
3 Main Ticks of Public Health Concern in Minnesota

**Blacklegged (Deer) Tick**
- Lyme disease
- Anaplasmosis
- Babesiosis
- Ehrlichiosis
- Powassan virus disease
- *Borrelia miyamotoi* disease

**American Dog (Wood) Tick**
- Rocky Mountain Spotted Fever
- Tularemia

**Lone Star Tick**
- Ehrlichiosis
- Tularemia
- Heartland virus disease
- Bourbon virus disease
- Southern Tick-Associated Rash Illness (STARI)
Tick Life Stages

Blacklegged Tick (Ixodes scapularis)
- Adult female
- Adult male
- Nymph
- Larva

Lone Star Tick (Amblyomma americanum)

Dog Tick (Dermacentor variabilis)
Blacklegged Tick Life Cycle

- Eggs
- Nymph
- Larva
- Adults

Risk of human infection greatest in late spring and summer.

Seasons: Spring, Summer, Fall, Winter.
Blacklegged Tick Life Stages

Larva

Nymph

Adult
Engorged Adult Female Blacklegged Tick
Questing

What blacklegged ticks do:

• Search for a host from the tips of low-growing vegetation
• Sense body chemicals and other cues from potential hosts
• Climb onto a person or animal near ground level as they walk by

What blacklegged ticks don’t do:

• Jump
• Fly
• Fall from treetops
• See
Blacklegged Tick Habitat
Tickborne Disease Risk in Minnesota

Photo courtesy of MN Department of Natural Resources (accessed 2/16/2018)
http://www.dnr.state.mn.us/biomes/index.html
Distribution of Blacklegged Tick Populations by County in Minnesota
Reported Tickborne Disease Cases in Minnesota, 1996-2018

Number of Cases

Year of Diagnosis

Lyme disease
Anaplasmosis
Babesiosis
What are the symptoms of a tickborne disease?

• Many tickborne diseases have similar symptoms

• Initial symptoms usually show up within 2-4 weeks of being bitten by an infected tick

• Watch for symptoms like:
  • Rash
  • Fever
  • Headache
  • Fatigue
  • Muscle or joint aches
How are tickborne diseases diagnosed?

• If you think that you may have a tickborne disease, contact your health care provider as soon as possible

• Your health care provider can determine if you have a tickborne disease based on your:
  • History of being around wooded or brushy areas (where ticks may live)
  • Physical examination
  • Laboratory tests
Are tickborne diseases treatable?

• Most tickborne diseases are treatable

• For most people, the prognosis is good and symptoms go away after treatment

• Talk with your health care provider about managing symptoms that have not resolved after treatment
Lyme Disease

- *Borrelia burgdorferi*
- **Symptoms**
  - Characteristic Rash (erythema migrans)
  - Fever
  - Muscle or joint pain
  - Fatigue
- **Diagnosis**
  - History of exposure to ticks or wooded areas
  - Physical examination
  - Laboratory testing
- **Treatment**
  - Antibiotics
Anaplasmosis

- *Anaplasma phagocytophilum*

- **Symptoms**
  - Fever
  - Severe headache
  - Muscle or joint pain
  - Severe complications and death possible

- **Diagnosis**
  - History of exposure to ticks or wooded areas
  - Physical examination
  - Laboratory testing

- **Treatment**
  - Antibiotics
Babesiosis

- *Babesia microti*

- **Symptoms**
  - Fever
  - Headache
  - Fatigue
  - Severe complications and death possible

- **Diagnosis**
  - History of exposure to ticks or wooded areas
  - Physical examination
  - Laboratory testing

- **Treatment**
  - Patients without symptoms may not require treatment
  - Combination of anti/protozoal and antibiotic
Rare/Emerging Tickborne Disease Agents in Minnesota

Powassan virus

*Ehrlichia muris eauclairensis*

*Borrelia mayonii*

*Borrelia miyamotoi*

*Rickettsia rickettsii*

*Francisella tularensis*

*transmitted by the American dog (wood) tick, not the blacklegged tick*
Protect Yourself from Tickborne Diseases

1) Know when and where you’re at risk
   - Primarily Mid-May through mid-July
   - Wooded and brushy areas – Blacklegged tick
   - Grassy or wooded areas – American dog tick

2) Wear EPA-registered tick repellent
   - DEET 20-30% on skin or clothing
   - Permethrin 0.5% on clothing

3) Check yourself for ticks
   - Undress and shower after being outdoors
   - Check at least once a day
   - Remove ticks ASAP!

- This 2-minute video shows you how to choose and use a safe and effective bug spray that will protect you from ticks and mosquitoes and the diseases they may carry.
How to Remove a Tick

If you find a tick on yourself, remove the tick as soon as possible.

- Prompt tick removal is important in order to lower your risk of tickborne disease transmission.
- Use a pair of tweezers or your fingers to grasp the tick by the head, close to the skin.
  - Pull the tick outward slowly, gently, and steadily
  - Clean the area with soap and water.
- Avoid folk remedies like Vaseline®, nail polish remover or burning matches - they are not a safe or effective way to remove ticks.

Watch this 1-minute video that shows you how to quickly remove a tick.
Other Tick Prevention Methods

Tumble dry clothing on high for ≥ 6 (dry) - 60 (wet) minutes

Keep lawn and trails mowed short

Remove leaf litter and brush

Create a barrier between your yard and woods

Talk with your vet about tick preventatives for your pets

Image courtesy of Kirby Stafford, Connecticut Agricultural Experiment Station, New Haven
Be Aware of Tickborne Disease Symptoms

Contact your doctor if you notice:
- Rash
- Fever
- Headache
- Fatigue
- Muscle or joint aches
Thank You!

Questions?
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