

Tick-Borne Infections Council
of North Carolina, Inc.

info@tic-nc.org
919-215-5418

tic-nc.org



**Improving the Recognition, Treatment, Control &
Understanding of Tick-Borne Diseases in NC**

Tick-Borne Infections Council of North Carolina, Inc.

(TIC-NC), a 501(c)(3) non-profit organization, was formed in 2005 to help educate the public and medical, veterinary, and public health professionals about ticks and tick-borne illnesses (TBIs) in NC. We are an all volunteer, non-profit organization.

Ticks in North Carolina

- In NC people get diseases from tick bites.
Pets can get diseases too.
- Five kinds of ticks found in North Carolina bite humans.
The most common and aggressive tick in the state is the **Lone Star tick**. **Dog ticks**, **Blacklegged (deer) ticks** and others bite less frequently. **Brown Dog ticks** sometimes infest dwellings and bite humans. **Gulf Coast ticks** are found in eastern and central NC.
- The number of ticks and risk of infections varies from year to year by location, season, and environmental conditions.
- According to the NC Division of Public Health, Lyme disease may be acquired across the state.

Ticks and the Role of the State

Until 2011 the state's Public Health Pest Management Section helped protect the public from vector borne diseases. Additional funding in 2008 helped to expand their focus on ticks and tick-borne disease. The Section was abolished by legislative action in July 2011.

In early 2017, stimulated by monies and interest due to the new mosquito-borne Zika virus, the NC Division of Public Health, Communicable Disease Branch, hired two entomologists. One will focus on mosquitoes, the other on ticks and tick-borne infections. The Division continues to report certain tick-borne infections as required by the Communicable Disease law – <http://epi.publichealth.nc.gov/cd>.



TIC-NC.ORG

Our website has additional information:

- Tick slide shows
- TIC-NC Newsletters
- Links to more tick related information

Become a member:
tic-nc.org/join donate

Stay informed.

Human Diseases and Conditions That May Be Caused by Ticks in NC

<p>Lone Star Tick <i>Amblyomma americanum</i></p> 	<p>Alpha-gal (red meat allergy) Bourbon virus* Ehrlichiosis Heartland virus* Spotted Fever Rickettsiosis (such as Rocky Mountain Spotted Fever {RMSF}) STARI (southern tick-associated rash illness) Tick paralysis Tularemia</p> <p><i>Research is still examining whether the lone star tick can transmit a bacteria related to Lyme disease.</i></p> <p><i>All developmental stages of the lone star ticks bite humans – larval, nymph, and adult.</i></p>
<p>American Dog Tick <i>Dermacentor variabilis</i></p> 	<p>Spotted Fever Rickettsiosis Tick paralysis Tularemia</p>
<p>Blacklegged Tick <i>Ixodes scapularis</i></p> 	<p><i>Anaplasma phagocytophilum</i> infection# Babesiosis* <i>Borrelia miyamotoi</i>*# <i>Ehrlichia muris-like infection</i>*# Lyme disease Powassan virus* Tick paralysis</p> <p><i>#There are no common names for these diseases.</i></p>
<p>Brown Dog Tick <i>Rhipicephalus sanguineus</i></p> 	<p>Rocky Mountain Spotted Fever Spotted Fever Rickettsiosis Tick paralysis</p>
<p>Gulf Coast Tick <i>Amblyomma maculatum</i></p> 	<p>Spotted Fever Rickettsiosis (R. <i>parkeri</i>) Tick paralysis</p>

*Diseases ticks may carry that have not yet been reported in North Carolina.
Spotted fever rickettsiosis (includes Rocky Mountain spotted fever), Lyme disease, and ehrlichiosis are the most common tick-borne infections in NC.
No data are available for STARI(southern tick-associated rash illness).

Prevention and Protection

Outdoors

- Walk on wide trails. Avoid tall grass, shrubs, and wooded, dense landscapes, jumping in leaves or sitting on logs.
- Cut grass regularly and remove yard waste.

On Your Body

- Wear long pants. Tuck pants into socks and shirts into pants to avoid ticks getting under clothing.
- Use repellents and treated clothing consistently and correctly. See our [Repellent Brochure](https://tic-nc.org/publications) at tic-nc.org/publications.
- Shower and check for ticks daily – visit our website for the safest way to remove ticks: tic-nc.org/prevent-illness.

Protect Yourself Year-Round.

Winter months can still have ticks depending on the weather and species.

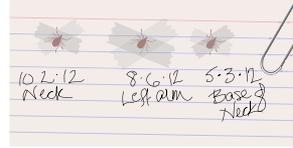
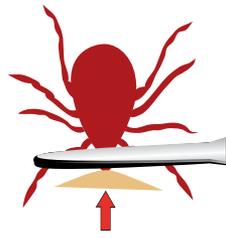
On Your Pets

- Pets that go outdoors have greater risk of tick-borne illnesses.
- Protect your pets with tick prevention products and regular tick checks.
- Watch for tick-borne illness symptoms such as loss of appetite, weakness, joint pains, and more.



How to Remove Ticks Safely

1. **Grasp the tick firmly** with sharp-pointed tweezers, as close to the skin as possible. Pull straight out slowly and steadily.
2. Use alcohol on bite site and tweezers.
3. Wash hands thoroughly.
4. **Keep the tick.** Tape it to a card. Write the date and where it bit. If you develop an infection this information could be helpful.
5. Watch for flu-like symptoms and/or rashes for 30 days.



Dangers of Improper Removal

Do not squeeze, burn, or use products on the tick. This may irritate the tick, causing it to regurgitate infected bodily fluids into the wound.

Do not use bare fingers. Infected fluids from the tick could enter tiny cuts in your skin.

Do not twist the tick. This can cause the mouthparts to break off and remain in the wound.



Follow us on [Facebook.com/TICNC](https://www.facebook.com/TICNC)



Alpha-gal allergy

Known as red meat allergy, is an allergic reaction to a sugar in mammal meat called galactose-alpha-1,3-galactose. Unlike most food allergies, symptoms occur several hours after eating mammal meat rather than immediately. Symptoms can range from indigestion to hives to a full-blown anaphylactic reaction. This allergy is associated with bites from Lone Star ticks. People with alpha-gal can safely eat poultry and fish, but not beef, pork or lamb. A blood test is available.

SOME TICK-BORNE ILLNESS FACTS

- Knowledge of the germs that ticks carry is constantly changing and the discovery of new diseases is ongoing.
- Ticks may carry bacteria, viruses, and protozoa that can make humans and animals sick. Fortunately, not all ticks are infected.
- Some diseases are specific to certain ticks.
- There are regional and yearly differences in types of ticks and percentages that carry diseases.
- The quicker a biting tick is removed, the less chance there is of contracting a disease.
- Some ticks may go unnoticed because of their location or small size. These ticks can cause disease.

Rashes

Diseases caused by ticks do not always cause rashes, or a rash could be in a place that is not noticed. When present, the appearance may help with diagnosis. The Lyme/STARI rash is usually circular or oval, and often solid red. Less frequently, it has a “bull’s eye” appearance. RMSF may cause spots all over the body, including palms and soles of the feet. Rashes from infections usually take several days to develop. A red, often itchy rash up to the size of a quarter is a normal reaction to the Lone Star tick bite and does not indicate disease.

Diagnosis

The diagnosis should be made on clinical rather than laboratory findings for acute Lyme disease, STARI, RMSF, and other tick-borne infections. Clinical findings include tick exposure (as many as 40% do not recall a tick bite) and symptoms such as fever, chills, headache, rashes, swollen lymph nodes, fatigue, muscle aches, joint pains, and gastrointestinal problems.

- Waiting for lab tests delays treatment, increasing severity of illness.
- Early blood tests are not accurate because antibodies have not yet formed.
- The CDC recommended “two-tiered test” for Lyme disease is for public health surveillance and is not highly accurate for clinical diagnosis.
- RMSF or Ehrlichiosis tests may cross-react with similar bacteria.
- No test is available for STARI.

Treatment

Prompt treatment with antibiotics will usually cure most infections. For Lyme disease, some clinicians believe 4 to 6 weeks of antibiotics ensures a better cure rate than the commonly prescribed two to three weeks. Ticks may carry more than one human pathogen, so co-infections must be identified and treated as well, especially if illness persists. Until more is known, STARI should be considered a Lyme-like disease and treated accordingly.

Failure or Delay of Treatment

- The **Rocky Mountain Spotted Fever (RMSF)** death rate is much lower than in the past, but still may be around 5%. RMSF is now usually called 'spotted fever rickettsiosis' (SFR) because related bacteria, which are not as dangerous, may be causing some of the illnesses.
- **Ehrlichiosis** must also be diagnosed and promptly treated to avoid serious complications, even death.
- For **Lyme Disease**, delayed or inadequate treatment may result in neurological, arthritic or cardiac problems, and others. Recovery may be long and difficult, sometimes requiring complex treatment regimens.
- **STARI** left untreated may lead to serious problems according to some research. No long-term studies have been conducted.



CONTROVERSY

Diagnostic and treatment strategies for Lyme disease are controversial.

Differing guidelines are found at:

- **The International Lyme and Associated Disease Society (ILADS)**
<http://www.ilads.org>
- **Infectious Disease Society of America (IDSA)**
<http://www.idsociety.org>

Our Mission

The Tick-Borne Infections Council of North Carolina, Inc.

is a 501(c)(3) non-profit organization working to improve the recognition, treatment, control, and understanding of tick-borne diseases in North Carolina.

Our Goals

Educate the public, medical and veterinary professionals, school health nurses, and the public health system about tick-borne diseases in North Carolina, including risk factors, emerging infections, and prevention.

Encourage state public health agencies to conduct ongoing surveillance of the prevalence of tick-borne infections in North Carolina citizens and in ticks and vectors, and make this information available to the public and the medical sector.

Coordinate with the public health sector to ensure all tick-borne infections are reported at both county and state levels.

Support the public health sector in identifying and characterizing newly emerging tick-borne infections in the Southeast.

Foster improved communication between the public and health professionals with respect to tick-borne diseases.

Maintain a registry of persons reporting North Carolina acquired tick-borne disease to TIC-NC.



**Tick-Borne
Infections Council
of North Carolina, Inc.**

PO Box 841, Pittsboro, NC 27312

Phone: 919-215-5418

Website: *tic-nc.org*

Email: *info@tic-nc.org*

tic-nc.org

Member, NC Center for Nonprofits

Thank you to our donors who made this brochure possible.