



## BASIC INFORMATION

### WHAT IS TICK-BORNE DISEASES?

- Certain diseases can be transmitted through the bite of an infected tick
- These diseases are caused by pathogens such as bacteria, viruses or parasites
- The most common US tick-borne diseases are
  - Lyme disease
    - The most common reported
    - More than 22,500 confirmed cases were reported in 2010
  - Babesiosis
  - Ehrlichiosis
  - Rocky mountain spotted fever
  - Anaplasmosis
  - Southern tick-associated rash
  - Tick-borne relapsing fever
  - Tularemia
- Some other US tick-borne diseases include
  - Colorado tick fever
  - Powassan encephalitis
  - Q fever

### WHAT ARE COMMON SIGNS AND SYMPTOMS?

- Some common symptoms include
  - Body/muscle aches, joint pain, stiff neck
  - Fever
  - Headaches
  - Fatigue
  - Rash
  - Paralysis
- Specific early symptoms will depend on the disease transmitted
  - Lyme disease
    - Erythema migrans: red ring-like rash (bullseye) at the site of bite
      - Rash not present in all cases
    - Flu-like symptoms: body discomfort, headache, fever, muscle, and joint pain
    - Swollen lymph nodes
  - Babesiosis
    - Fever, chills, sweats
    - Body discomfort, fatigue
    - Muscle and joint pain, headache
    - Gastrointestinal symptoms, such as loss of appetite and nausea
    - Dark urine
    - Less common: cough, sore throat, emotional lability, depression, photophobia, conjunctival injection
    - Mild spleen or liver enlargement or jaundice may occur in some patients
  - Ehrlichiosis
    - Fever, chills
    - Headache
    - General discomfort, muscle pain
    - Nausea, vomiting, diarrhea, and loss of appetite
    - Rash
    - Altered mental status
  - Anaplasmosis
    - Fever, chills
    - Severe headache

- General discomfort, muscle pain,
- Nausea, vomiting, diarrhea, and loss of appetite
- Rash
- Tick-borne relapsing fever
  - Headache
  - Muscle and joint pain
  - Chills
  - Nausea and vomiting
- Refer to individual disease monographs for more detailed, disease-specific information

## WHAT CAUSES TICK-BORNE DISEASES?

- Being bitten by an infected tick
- Extended time the tick remains attached (over 24-48 hours)
- These ticks have a higher risk of transmitting a tick-borne disease
  - Blacklegged tick
    - Image to the right illustrates the adult deer tick, *Ixodes scapularis*
  - Lone star tick
  - American dog tick
  - Brown dog tick
  - Groundhog tick
  - Gulf coast tick
  - Rocky mountain wood tick
  - Western blacklegged tick
  - Soft tick
- These ticks are more likely to bite humans
  - Blacklegged tick
  - Lone star tick
  - Dog tick



## WHAT INCREASES MY RISK?

- Working outdoors, especially around woods and brush, or farming
- Spending a lot of time outdoors
  - Hiking
  - Camping
- Having a pet that goes outdoors

## WHAT ARE POSSIBLE COMPLICATIONS?

- Rarely, the same tick can carry different infections and could transmit several with one bite
- Lasting symptoms once the disease is gone

## WHAT CAN I EXPECT?

- You may be referred to a specialist depending on the tick-borne disease
- Your healthcare provider will likely notify the local public health department
- In severe cases you could require hospitalization
- Most people make a full recovery
  - Some cases have lingering effects

## HOW DO I REDUCE MY RISK?

- Wear light-colored, long sleeves and pants
  - Light colors allow easier spotting of ticks
- Tuck pant legs into your socks
- Use insect repellents, especially ones with DEET, on both clothing and exposed skin
  - Reapply repellents as needed
- Permethrin repellent can be applied to clothing and gear (tents, backpacks, etc.) only, NOT to skin
- Around your home: ensure brush is clear, remove leaf litter, cut back high grass

# DIAGNOSIS AND TREATMENT

## WHAT GENERAL MEASURES SHOULD I TAKE?

- Your healthcare provider will perform an exam, collect information regarding your signs and symptoms, and possibly run tests if warranted
- Self-care
  - Check skin and clothing after you return indoors
    - Check hair, groin, waistband of underwear, underarms
  - If a tick is found, remove immediately
    - Using tweezers, grasp tick as close to your skin as possible
    - Pull with one steady motion straight up
    - Wash area with soap and water
- Activity
  - Activity restrictions would depend on which tick-borne disease you have and your signs and symptoms
- Diet
  - Dietary recommendations are generally not required
  - If you have nausea and vomiting
    - Remain hydrated, bland foods, small frequent meals
- Helpful Link(s)
  - To learn more: CDC
    - Website: <https://www.cdc.gov/lyme/resources/TickborneDiseases.pdf>

## WHAT ARE COMMON LABS AND TESTS?

- Laboratory blood tests to determine disease and/or confirm a diagnosis

## WHAT ARE MY TREATMENT OPTIONS?

- Symptom management
- Medication treatment
- Depending on the tick-borne disease
  - Consultation/referral to an infectious disease specialist
  - Consultation/referral to other specialists
    - Neurologist
    - Rheumatologist

## WHAT MEDICATIONS MAY BE PRESCRIBED?

- Medications are depending on which tick-borne disease you have
  - Antibiotics
  - Pain medication for body, muscle, joint pain, and fever reduction
    - Over-the-counter
    - Prescription

## WHAT CAUTIONS SHOULD I TAKE?

- Use preventative measures while outdoors
- Take medications as prescribed; report intolerable side-effects
- Follow your healthcare providers recommendations for the tick-borne disease you have been diagnosed with

## WHEN SHOULD I SEEK MEDICAL HELP?

- Seek medical attention if signs and symptoms of a tick-borne disease
- If diagnosed with a tick-borne disease and you develop new or worsening signs or symptoms, or if treatment complications arise

# MY HEALTHCARE PROVIDER'S COMMENTS

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## REFERENCES

- Tick-Borne Diseases. Centers for Disease Control and Prevention. Available at: <https://www.cdc.gov/niosh/topics/tick-borne/default.html> . Accessed May 2019.
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- Paules CI, Marston HD, Bloom ME, Fauci AS. Tickborne Diseases — Confronting a Growing Threat. New England Journal of Medicine. 2018;379(8):701-703. Available at: <https://www.nejm.org/doi/full/10.1056/NEJMp1807870> . Accessed May 2019.
- Image of Adult Deer Tick courtesy of Scott Bauer, Agricultural Research Service, the research agency of the United States Department of Agriculture [Public Domain] Available at: [https://commons.wikimedia.org/wiki/File:Adult\\_deer\\_tick.jpg](https://commons.wikimedia.org/wiki/File:Adult_deer_tick.jpg) .

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