

Tickborne diseases are on the rise: Here's what to know

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Warmer weather has arrived across much of the U.S., and that means more hikes, outdoor fun—and concerns about ticks.

The annual number of tickborne disease cases has more than doubled in the U.S. in the past two decades. There are several potential reasons for this, including growing tick populations, rising heat and humidity that help ticks thrive in more places for longer periods, and improved tracking of these diseases.

Lyme disease is by far the most common tickborne disease: The CDC records some 36,000 cases each year, but not all cases are reported, and the agency has estimated that as many as half a million Americans are diagnosed with and treated for the disease annually.

But ticks carry a host of other tickborne diseases that, while less common, are also on the rise and have more limited treatment options, says Nicole Baumgarth, DVM, Ph.D., a Bloomberg Distinguished Professor of immunology and [infectious diseases](#), and the inaugural director of the Johns Hopkins Lyme and Tickborne Diseases Research and Education Institute.

Baumgarth explains what to know—and some important unknowns—about tick season.

Where and when to be on the lookout for ticks

Ticks typically emerge in the spring and are active through early fall (April–October in the Northern Hemisphere). They favor wooded and high-grass areas and thrive in warmth and humidity.

Ticks cannot fly or jump. They tend to wait for hosts on branches and in [grassy areas](#) and can also be carried on small mammals or birds. They can also be passed to humans via pets, particularly dogs (ticks take little interest in biting cats).

The Northeast, upper Midwest, and Northwest are known as areas with a

lot of Lyme disease, but ticks carrying Lyme and other diseases can be found in many parts of the country, says Baumgarth.

However, researchers still haven't identified ticks' ideal habitat. "There are a lot of unknowns about what the perfect spot is for a tick, and therefore one that we may want to avoid," Baumgarth says. "We don't really understand why in some areas that seem to be ideal habitat for ticks"—such as a backyard abutting a forest, for example—"there aren't any."

Tickborne diseases

The CDC keeps a full list of the ticks in the U.S. and where they can be found. Ticks can transmit at least a dozen diseases that affect humans.

Symptoms of tickborne disease are notoriously nonspecific, says Baumgarth, but often include flu-like symptoms such as fever, malaise, and headaches, so it's important to see a doctor for a diagnosis and treatment if you suspect you may have a tickborne disease.

Lyme disease is transmitted by black-legged ticks, or deer ticks (*Ixodes scapularis*), which are most common across the eastern U.S. At the stage when they bite humans, they are minuscule—about the size of a poppy seed—and extremely difficult to see.

If left untreated, Lyme disease can affect the joints, heart, and nervous system. Antibiotics should be administered if Lyme is diagnosed or if Lyme is suspected after a high-risk tick bite. A prompt diagnosis can help prevent the onset of late or prolonged Lyme disease symptoms, which are much more difficult to treat.

A telltale sign of a Lyme-carrying tick bite is a "bull's eye" rash containing a white ring. That said, Baumgarth emphasizes that the

absence of a rash does not mean you do not have Lyme disease. Lyme disease is often hard to diagnose, even if suspected, as blood tests are not always reliable, particularly in the disease's early stages.

Babesiosis is a parasitic disease—also carried by deer ticks—that is on the rise in the Northeast and is now considered endemic in several states. Babesiosis is much less common than Lyme—the CDC recorded about 16,500 total cases from 2011 to 2019—but it can cause anemia and can be life-threatening for those who are immunocompromised. Once babesiosis is suspected, it is relatively easy to diagnose with a blood test, but because it is less common and initial symptoms can be mild or nonexistent, a diagnosis might be delayed.

It's possible to be infected with Lyme and babesiosis simultaneously, as the same ticks can carry both pathogens.

Black-legged ticks can also transmit Powassan virus, which is rare, but cases are rising, and there are currently no available treatments.

Other types of ticks transmit less prevalent tickborne diseases.

The American dog tick (*Dermacentor variabilis*), as the name suggests, is commonly found on dogs and is most prevalent across the Rocky Mountains and in parts of the Pacific coast.

And their brown color makes them more visible than some other ticks. This tick is known to transmit tularemia and Rocky Mountain spotted fever, which is the deadliest tickborne disease in the world, but it's rare in the U.S. and can be treated with antibiotics if caught early.

The lonestar tick (*Amblyomma americanum*), indigenous to the eastern, southeastern, and south-central states, is known for its distinctive yellow marking. It can transmit Rocky Mountain spotted fever, Heartland virus

disease, southern tick-associated rash illness (STARI), Bourbon virus disease, and tularemia.

Preventing tickborne diseases

There are no vaccines for humans against tickborne diseases, but there are ways to protect yourself.

Since it's difficult to spot ticks once they're on you, prevention is the real key. If you're planning to spend time outdoors in tick-prone areas, Baumgarth advises:

- Wear long pants and a long-sleeved shirt.
- Spray your clothes with 0.5% permethrin, an insecticide that kills ticks.
- "Be a dork" and tuck your pants into your socks.
- Wear a hat.

After being outdoors:

- Shake out your clothing outside.
- Bathe or shower within two hours.
- Do a full body check on yourself and your loved ones: Ticks prefer warm areas, like armpits and other folds, but they'll latch on wherever they can.
- Have a companion check areas you can't easily see, such as your back and the back of your scalp.

What should I do if I find a tick on myself?

[Promptly remove it.](#)

But don't panic:

- Not all [ticks](#) carry disease.
- Even if a tick is carrying disease, it hasn't necessarily been transmitted to you. Lyme disease and several other tickborne diseases aren't transmitted until about 36–48 hours after the tick latches on.

Tickborne diseases can typically be treated if caught early, so see a doctor if you suspect you may have been bitten by a tick—especially if you experience flu-like symptoms.

In high-risk areas, a single prophylactic dose of the antibiotic doxycycline can be used to reduce the risk of acquiring Lyme disease after a [tick](#) bite.

Provided by Johns Hopkins University Bloomberg School of Public Health

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