



Lyme Disease

in New York City, 2018

- Lyme disease is caused by the bacteria *Borrelia burgdorferi*. Infected **blacklegged ticks (*Ixodes scapularis*)** (Image 1) spread the bacteria when they bite humans and some animals, including dogs.
- Common symptoms of Lyme disease include a **bullseye rash (erythema migrans)** (Image 2), **headache, fever, tiredness, swollen glands (lymph nodes), and muscle and joint pain.**
- Blacklegged ticks are established in two areas of New York City (NYC). They are widespread across **Staten Island** and present in a small part of the **North Bronx.**



Image 1. *Ixodes scapularis* larva, nymph, adult male and adult female from left to right.

- The main **risk factors** for Lyme disease for NYC residents are **travel to an endemic area** (an area where blacklegged ticks are widespread) and **spending time outdoors in Staten Island.**
- Ticks are found in cooler areas where trees, brush, leaf litter and tall grasses provide cover and shade from the sun. Ticks avoid heat and direct sunlight.

- Most people are bitten by ticks during the **spring, summer and fall**, when ticks are most active.
- Lyme disease symptoms usually develop **three to 30 days after the tick bite.**



Image 2. Bullseye rash (erythema migrans)

NYC Tick Surveillance Data, 2017*

Tick surveillance in select parks in NYC has found that blacklegged ticks:

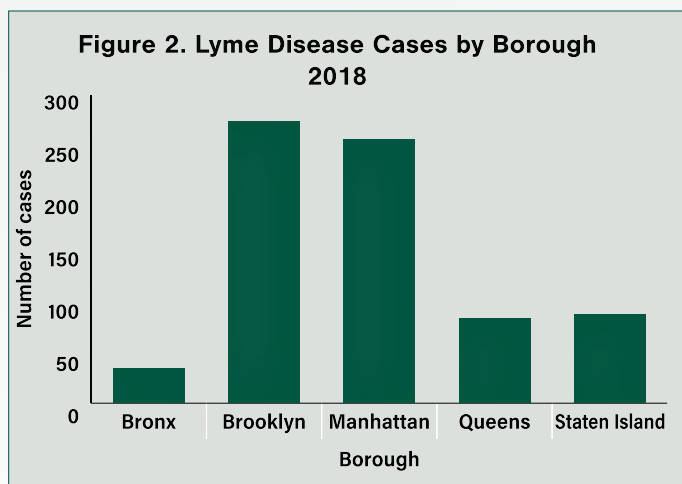
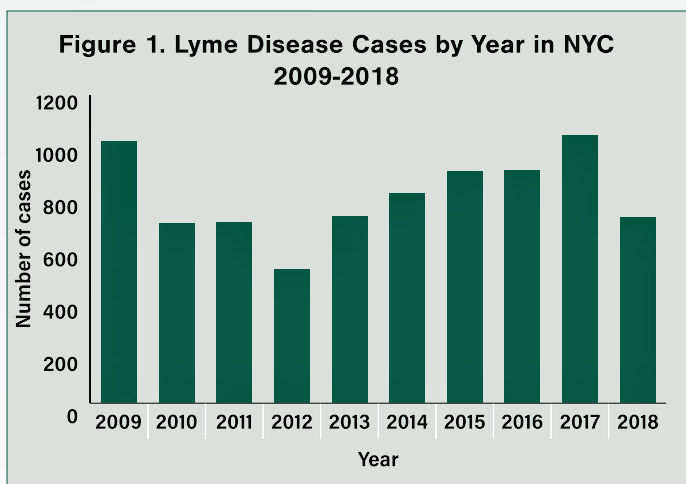
- Are not established in Manhattan, Brooklyn and Queens
- Are established across Staten Island and in Pelham Bay Park in the Bronx, where the number of ticks collected has been increasing
- Tested positive for the bacteria that cause Lyme disease in the Bronx (21%) and Staten Island (20%)

* Tick testing results are available the year after collection.

Patient Characteristics of NYC Lyme Disease Cases, 2018

- There were 753 reported cases of Lyme disease among NYC residents in 2018, a decrease from the previous year, and the first observed decrease in cases since 2012 (Figure 1).
- Cases were reported among residents of all five boroughs, with most cases occurring among Brooklyn (37%) and Manhattan (35%) residents (Figure 2).
- Most people were infected outside NYC. Residents traveled most often to surrounding states and counties, including the Catskills or Hudson Valley (57%), Pennsylvania (14%), and Long Island (9%).[†]
- Local transmission of Lyme disease continued to occur in Staten Island; 64% of cases interviewed reported no travel.[†]
- Most patients were male (60%) and White, non-Hispanic (83%).
- The average age of patients was 37 years old (range 1 month to 93 years).

[†] Based on interviews conducted with a subset of patients (n=131) from the outer boroughs in 2018 whose physician reported a bullseye rash (erythema migrans).



Tick-borne Disease Prevention

When spending time in areas where ticks may be found, follow these tips:

BEFORE YOU GO OUTDOORS	AFTER YOU GO INDOORS
<ul style="list-style-type: none"> ■ Use insect repellent with DEET, picaridin, IR3535 or oil of lemon eucalyptus extract (also known as PMD). 	<ul style="list-style-type: none"> ■ Check your clothing for ticks and remove any that are found.
<ul style="list-style-type: none"> ■ Treat clothing and gear with products containing 0.5% permethrin. 	<ul style="list-style-type: none"> ■ Tumble-dry clothes in a dryer on high heat for 10 minutes to kill ticks on dry clothing.
<ul style="list-style-type: none"> ■ Wear long pants and closed-toe shoes, and tuck pant legs into your socks. 	<ul style="list-style-type: none"> ■ Shower soon after being outdoors.
<ul style="list-style-type: none"> ■ Avoid wooded and brushy areas with high grass and leaf litter and walk in the center of trails. 	<ul style="list-style-type: none"> ■ Check yourself, children and pets for ticks.



Talk to your veterinarian about the best tick prevention products for your pet.

For more information about ticks, including how to safely remove them, visit nyc.gov/health/ticks.