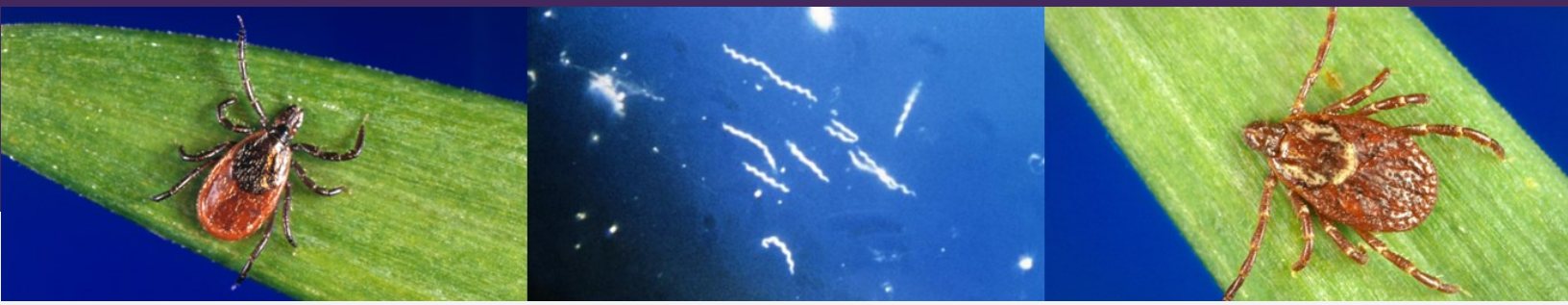
TICK-BORNE DISEASE SURVEILLANCE REPORT, 2025

New York State Department of Health
Bureau of Communicable Disease Control



Images courtesy of CDC

Ticks and the diseases they carry have become a growing concern in New York State, which continues to see an increase in both tick populations and number of tick-borne diseases that can be found in the state. Lyme disease, the most common tick-borne disease, occurs throughout the state. The tick-borne diseases anaplasmosis, babesiosis, and ehrlichiosis are occurring more frequently and are being found in new regions of New York State. Additional tick-borne diseases, such as Rocky Mountain spotted fever (RMSF), and Powassan virus disease (POW), are rare and occur at a relatively steady rate each year.

The New York State Department of Health collects, analyzes, and presents information on human cases of tick-borne diseases as part of routine communicable disease surveillance. New York State mandates that cases of tick-borne disease are reported to the local health department where the patient resides. Case reports from the 57 counties outside of New York City (NYC) are then compiled by the New York State Department of Health, where each case is compared to a national surveillance case definition[1] and assigned a reporting status. This report includes only cases that have been assigned the status of "confirmed" or "probable"; therefore, this analysis may exclude some cases that have incomplete reporting or otherwise do not meet the case definition. Case definitions change over time, which can potentially impact reported case counts and disease incidence. As such, diseases with case definition changes over the past 5 years are identified throughout this report.

REPORTABLE TICK-BORNE DISEASES IN NEW YORK STATE

Surveillance is conducted for:

* Lyme disease
* Anaplasmosis
* Babesiosis
* Ehrlichiosis
* Rocky Mountain spotted fever (RMSF)
* Powassan virus disease (POW)

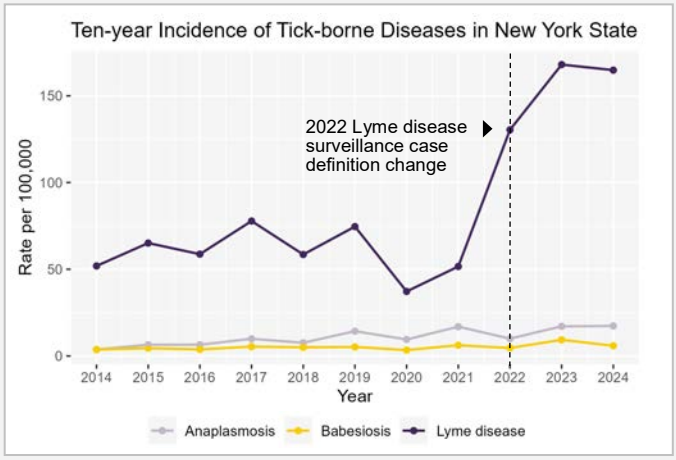


Figure 1: Ten-year trends in the most commonly reported tick-borne diseases in New York State. Following the 2022 Lyme disease national surveillance case definition change, New York State began reporting Lyme disease cases based on laboratory evidence only. This change contributed to the marked rate increase in Figure 1. NYC data is not included in this report.

KEY POINTS & GENERAL TRENDS

- Lyme disease, anaplasmosis, and babesiosis case counts continue to increase, while RMSF and POW cases generally remain more consistent.
- Lyme disease, anaplasmosis, and ehrlichiosis surveillance case definitions were updated in the last 5-years. Case definition changes should be considered when reviewing case counts and incidence rates.
- Between 2020-2024, the Capital District region[2] tended to have the highest incidence rates of Lyme disease, anaplasmosis, and babesiosis. In 2022 and 2023, the Western region had the highest rates of ehrlichiosis.

[1]Additional information about surveillance case definitions can be found at ndc.services.cdc.gov.

[2]See region designations on maps on pages 2-7.

NEW YORK STATE | Department of Health

LYME DISEASE

Lyme disease is a tick-borne disease caused by bacteria in the *Borrelia* genus. In New York State, Lyme disease is caused by the bacterium *Borrelia burgdorferi*, which is spread by the blacklegged tick, *Ixodes scapularis.*

LYME DISEASE TRENDS

- A total of 18,704 confirmed or probable cases of Lyme disease were reported in 2024 in New York State (excluding NYC).
- Between 2020 and 2024, in New York State (excluding NYC), incidence of Lyme disease has increased from 37.2 to 164.8 cases per 100,000 residents.
- Lyme disease cases were reported in all 57 New York (NY) counties outside NYC in 2024. (NYC data is not included in this report.)
- The national surveillance case definition for Lyme disease was updated in 2022 such that cases are classified on the basis of positive laboratory results alone, without requiring clinical evidence. This change contributed to the marked case count and rate increases in Figures 1, 3, and 4.

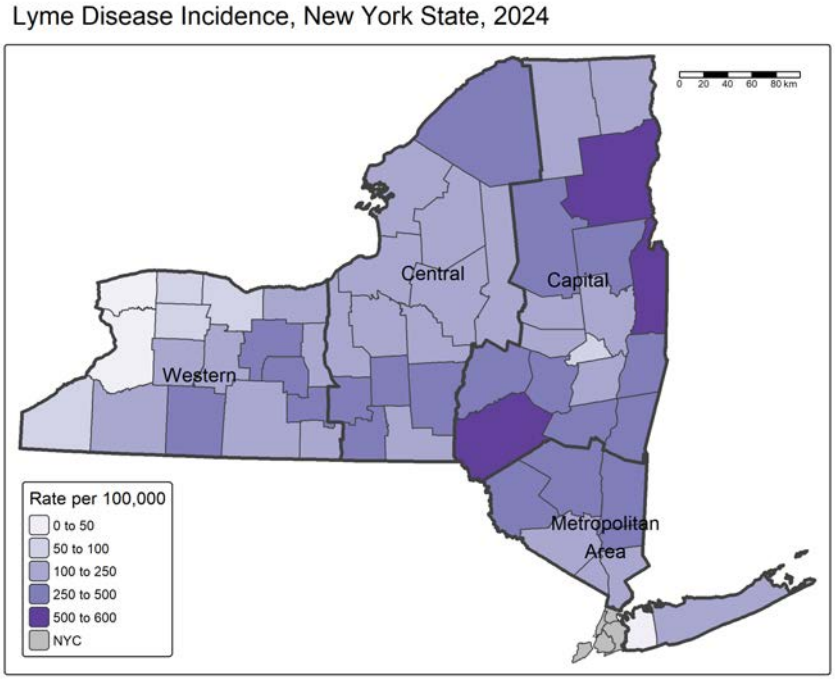


Figure 2: Incidence rate (cases per 100,000 residents) of Lyme disease in New York State, 2024. Note that map color definitions vary throughout the report. NYC data is not included in this report.

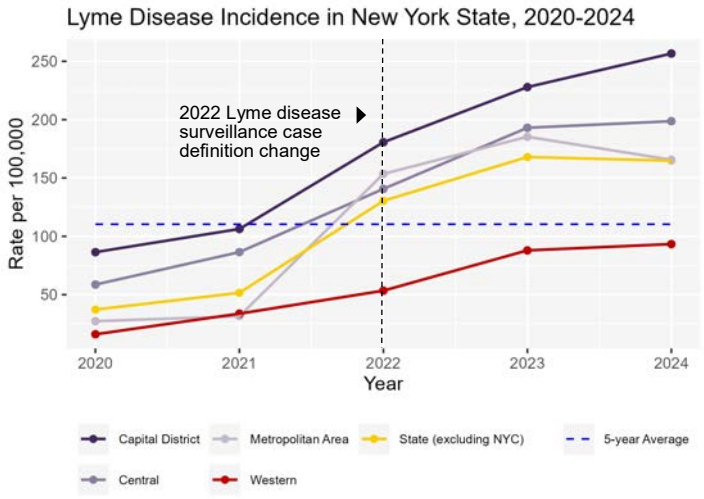


Figure 3: Incidence rate (cases per 100,000 residents) of Lyme disease by region in New York State, 2020-2024. NYC data is not included in this report.

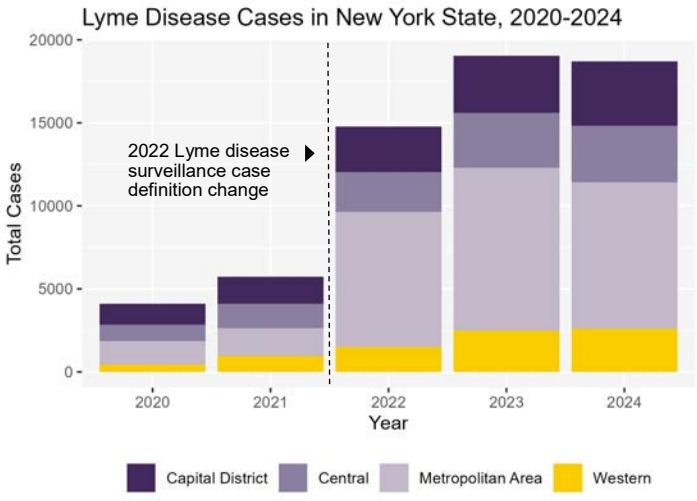


Figure 4: Lyme disease cases by region in New York State, 2020-2024. NYC data is not included in this report.

ADDITIONAL INFORMATION ABOUT LYME DISEASE:

Lyme disease CSTE surveillance case definition: https://ndc.services.cdc.gov/case-definitions/lyme-disease-2022/

For more information about Lyme disease, please visit https://www.health.ny.gov/diseases/communicable/lyme/.

ANAPLASMOSIS

Anaplasmosis, also known as human granulocytic anaplasmosis (HGA), is a tick-borne disease caused by the bacterium *Anaplasma phagocytophilum*. In New York State, these bacteria are spread by the blacklegged tick, *Ixodes scapularis*.

ANAPLASMOSIS TRENDS

- A total of 1960 confirmed or probable cases of anaplasmosis were reported in 2024 in New York State (excluding NYC).
- Between 2020 and 2024, in New York State (excluding NYC), incidence of anaplasmosis has increased from 9.5 to 17.3 cases per 100,000 residents.
- Anaplasmosis cases were reported in 51/57 NY counties outside NYC in 2024. (NYC data is not included in this report.)
- Effective January 1st, 2024, the CSTE case definition for anaplasmosis was updated.

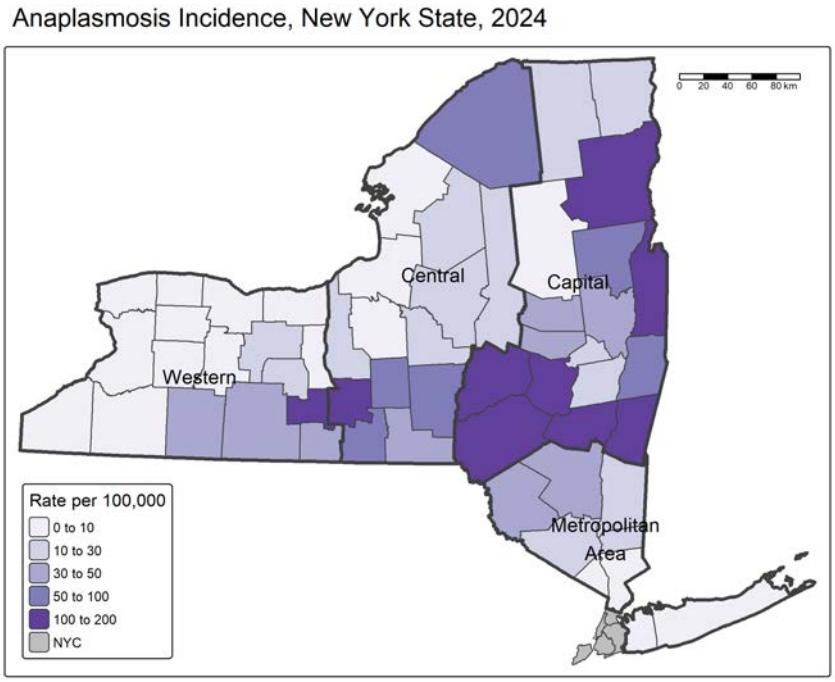


Figure 5: Incidence rate (cases per 100,000 residents) of anaplasmosis in New York State, 2024. Note that map color definitions vary throughout the report. NYC data is not included in this report.

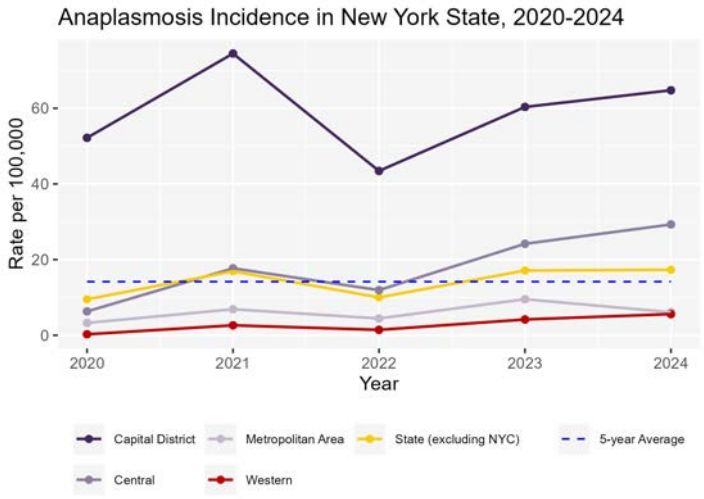


Figure 6: Incidence rate (cases per 100,000 residents) of anaplasmosis by region in New York State, 2020-2024. NYC data is not included in this report.

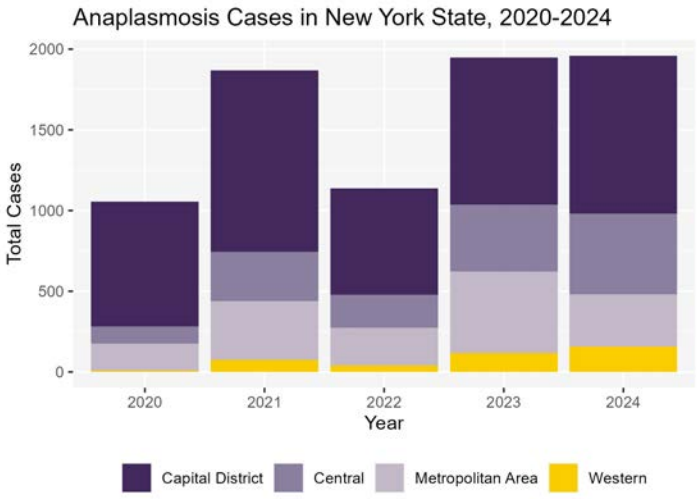


Figure 7: Anaplasmosis cases by region in New York State, 2020-2024. NYC data is not included in this report.

ADDITIONAL INFORMATION ABOUT ANAPLASMOSIS:

Anaplasmosis CSTE surveillance case definition: https://ndc.services.cdc.gov/case-definitions/anaplasmosis-2024/

For more information about anaplasmosis, please visit health.ny.gov/diseases/communicable/ehrlichiosis/fact_sheet.

BABESIOSIS

Babesiosis is a tick-borne disease caused by *Babesia*, a group of microscopic parasites. In New York State, babesiosis is caused by the parasite *Babesia microti*, which is spread by the blacklegged tick, *Ixodes scapularis*.

BABESIOSIS TRENDS

- A total of 670 confirmed or probable cases of babesiosis were reported in 2024 in New York State (excluding NYC).
- Between 2020 and 2024, in New York State (excluding NYC), incidence of babesiosis has increased from 3.4 to 5.9 cases per 100,000 residents.
- Babesiosis cases were reported in 46/57 NY counties outside NYC in 2024. (NYC data is not included in this report.)
- Effective January 1st, 2025, the CSTE case definition for babesiosis was updated.

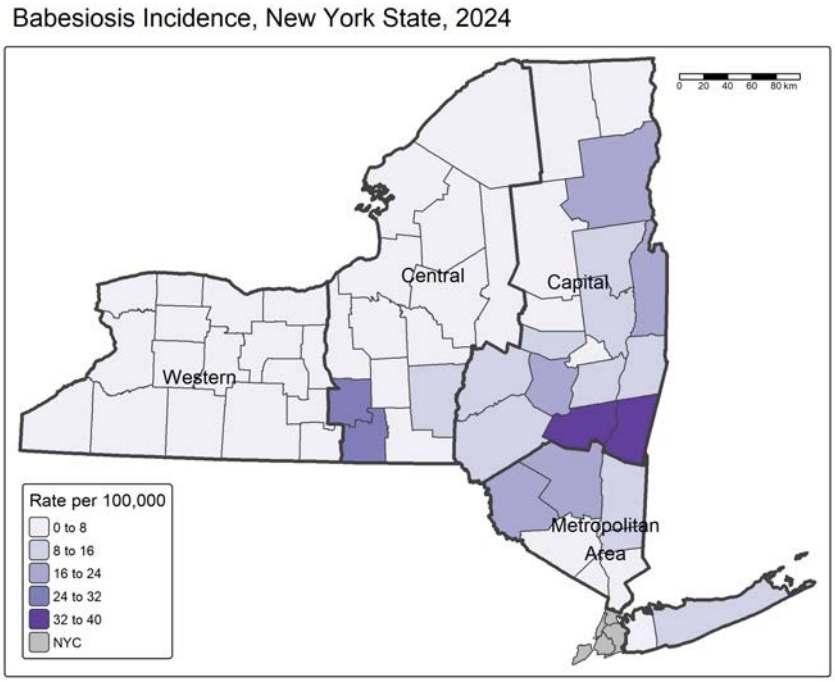


Figure 8: Incidence rate (cases per 100,000 residents) of babesiosis in New York State, 2024. Note that map color definitions vary throughout the report. NYC data is not included in this report.

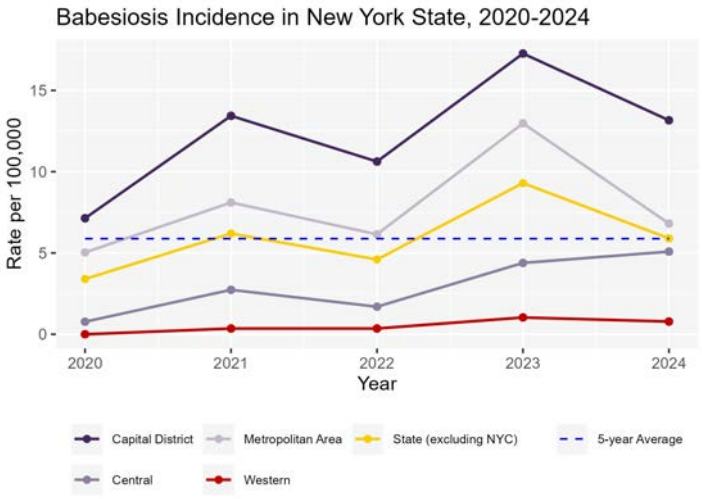


Figure 9: Incidence rate (cases per 100,000 residents) of babesiosis by region in New York State, 2020-2024. NYC data is not included in this report.

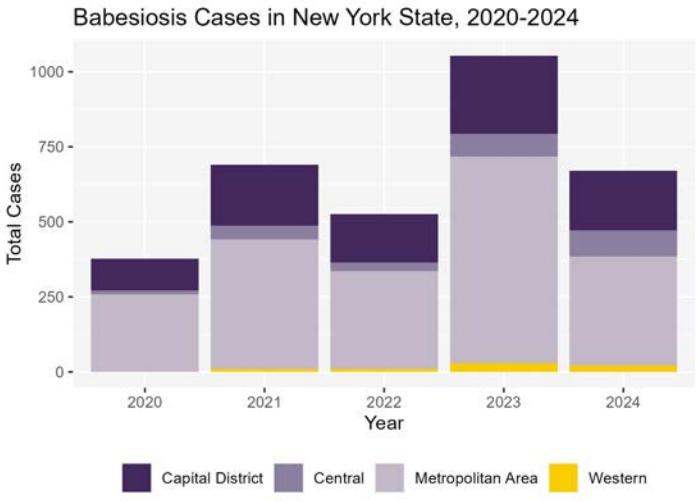


Figure 10: Babesiosis cases by region in New York State, 2020-2024. NYC data is not included in this report.

ADDITIONAL INFORMATION ABOUT BABESIOSIS:

Babesiosis CSTE surveillance case definition: https://ndc.services.cdc.gov/case-definitions/babesiosis/

For more information about babesiosis, please visit https://www.health.ny.gov/diseases/communicable/babesiosis/.

EHRLICHIOSIS

Ehrlichiosis, also known as human monocytic ehrlichiosis (HME), is a tick-borne disease caused by various species of bacteria. In New York State, ehrlichiosis is primarily caused by the bacterium *Ehrlichia chaffeensis*, which is spread by the lone star tick, *Amblyomma americanum*.

EHRLICHIOSIS TRENDS

- A total of 110 confirmed or probable cases of ehrlichiosis were reported in 2024 in New York State (excluding NYC).
- Between 2020 and 2024, in New York State (excluding NYC), incidence of ehrlichiosis has increased from 0.3 to 1.0 cases per 100,000 residents.
- Ehrlichiosis cases were reported in 19/57 NY counties outside NYC in 2024. (NYC data is not included in this report.)
- Effective January 1st, 2024, the CSTE case definition for ehrlichiosis was updated.

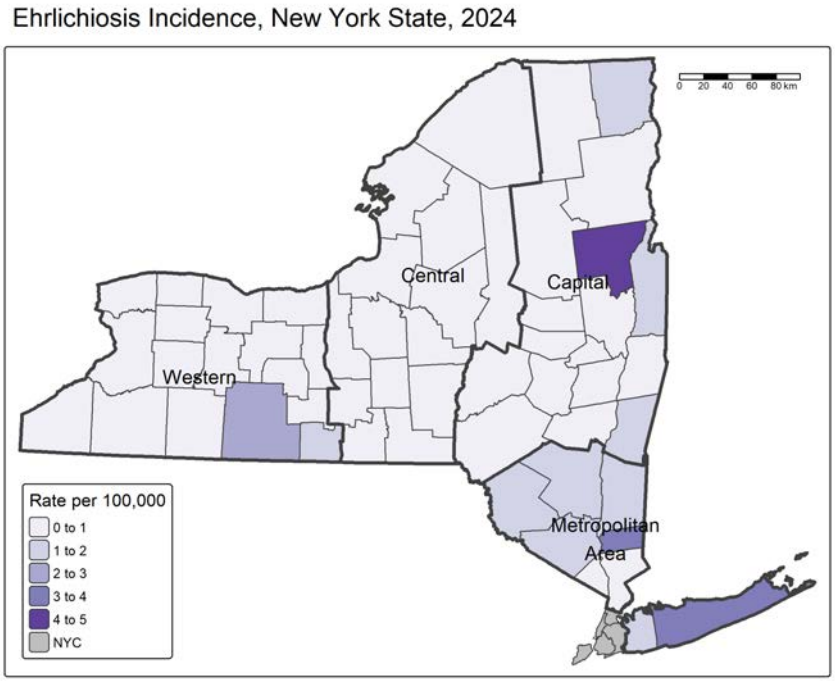


Figure 11: Incidence rate (cases per 100,000 residents) of ehrlichiosis in New York State, 2024. Note that map color definitions vary throughout the report. NYC data is not included in this report.

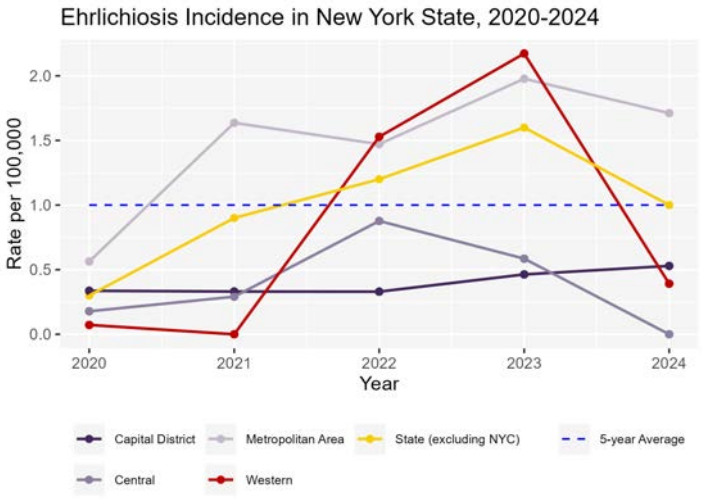


Figure 12: Incidence rate (cases per 100,000 residents) of ehrlichiosis by region in New York State, 2020-2024. NYC data is not included in this report.

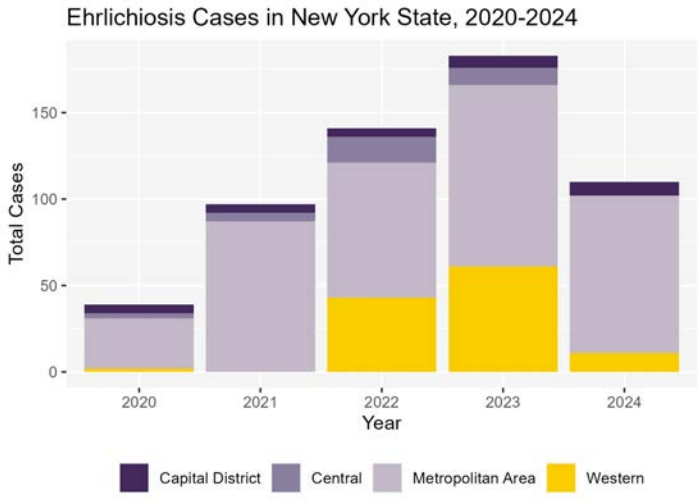


Figure 13: Ehrlichiosis cases by region in New York State, 2020-2024. NYC data is not included in this report.

ADDITIONAL INFORMATION ABOUT EHRLICHIOSIS:

Ehrlichiosis CSTE surveillance case definition: https://ndc.services.cdc.gov/case-definitions/ehrlichiosis-2024/

For more information about ehrlichiosis, please visit https://www.health.ny.gov/diseases/communicable/ehrlichiosis/.

ROCKY MOUNTAIN SPOTTED FEVER (RMSF)

Rocky Mountain spotted fever (RMSF) is a tick-borne disease caused by the bacterium *Rickettsia rickettsii*. In New York State, these bacteria are spread primarily by the American dog tick, *Dermacentor variabilis*.

RMSF TRENDS

- A total of 10 confirmed or probable cases of RMSF were reported in 2024 in New York State (excluding NYC).
- Between 2020 and 2024, in New York State (excluding NYC), incidence of RMSF has remained between 0 and 0.1 cases per 100,000 residents.
- RMSF cases were reported in 8/57 NY counties outside NYC in 2024. (NYC data is not included in this report.)

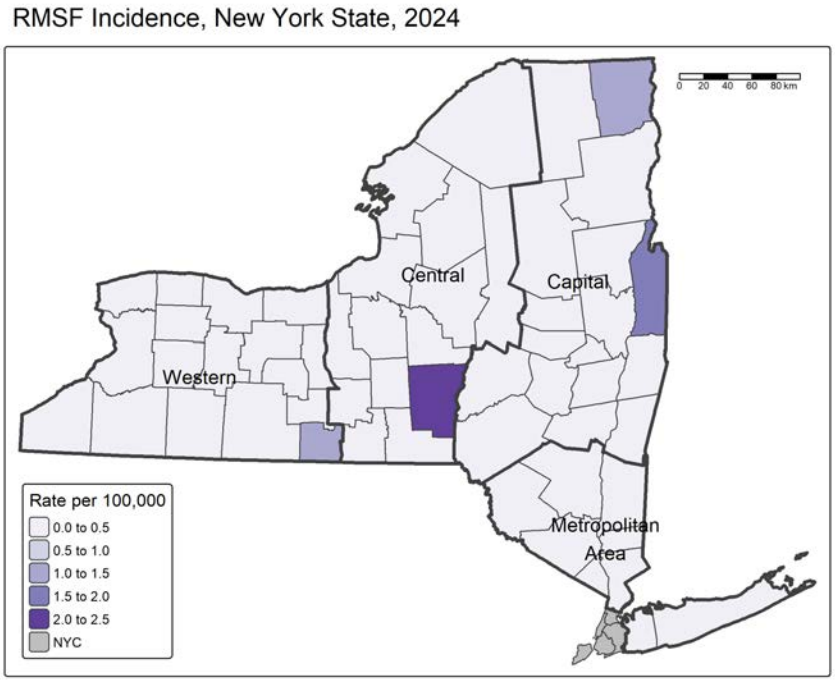


Figure 14: Incidence rate (cases per 100,000 residents) of RMSF in New York State, 2024. Note that map color definitions vary throughout the report. NYC data is not included in this report.

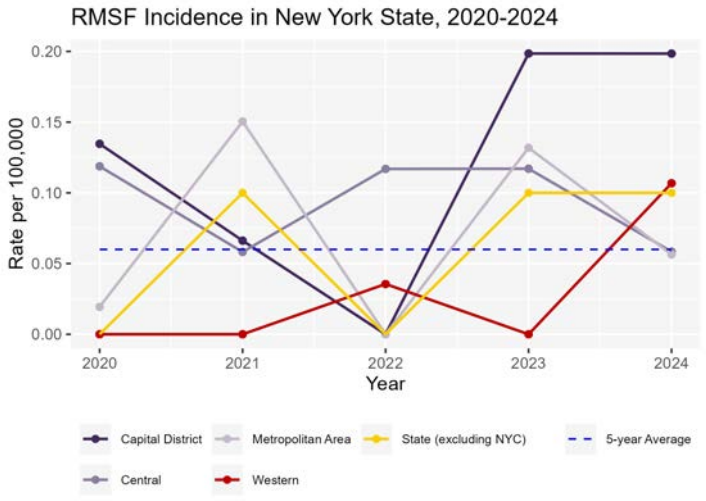


Figure 15: Incidence rate (cases per 100,000 residents) of RMSF by region in New York State, 2020-2024. NYC data is not included in this report.

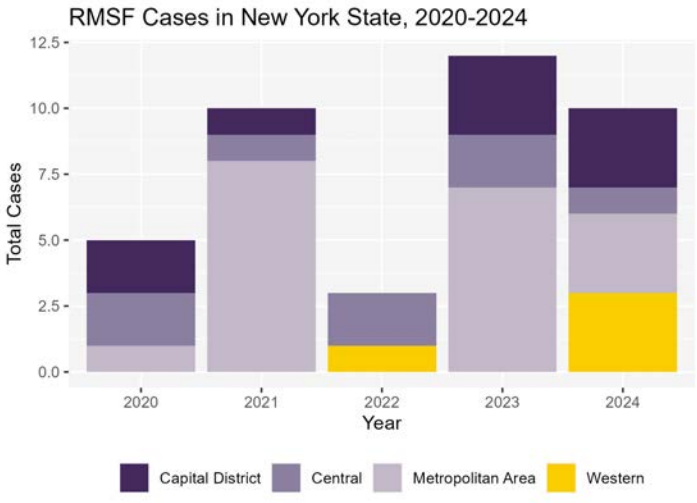


Figure 16: RMSF Cases by region in New York State, 2020-2024. NYC data is not included in this report.

ADDITIONAL INFORMATION ABOUT RMSF:

RMSF CSTE surveillance case definition: https://ndc.services.cdc.gov/case-definitions/spotted-fever-rickettsiosis-2020/.

For more information about RMSF, please visit https://www.health.ny.gov/diseases/communicable/rocky_mountain_spotted_fever/fact_sheet.htm.

POWASSAN VIRUS DISEASE (POW)

Powassan virus disease (POW) is a tick-borne disease caused by a virus, causing symptoms ranging from flu-like to encephalitis. In New York State, this virus is spread primarily by the blacklegged tick, *Ixodes scapularis.*

POW TRENDS

- A total of 3 confirmed or probable cases of POW were reported in 2024 in New York State (excluding NYC).
- Between 2020 and 2024, in New York State (excluding NYC), cases of POW have remained under 10 cases per year.
- POW cases were reported in 3/57 NY counties outside NYC in 2024. (NYC data is not included in this report.)
- 2022 had the highest number of POW cases, with 6 of 9 cases occurring in the Capital District region.
- There were no cases of POW in the Western region between 2020 and 2024.

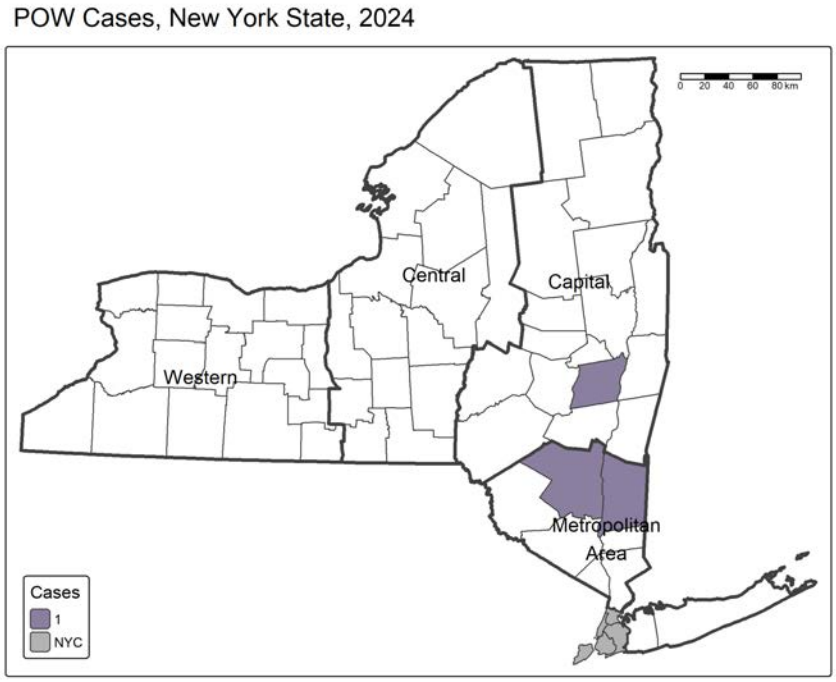


Figure 17: Cases of POW in New York State, 2024. Note that map color definitions vary throughout the report. NYC data is not included in this report.

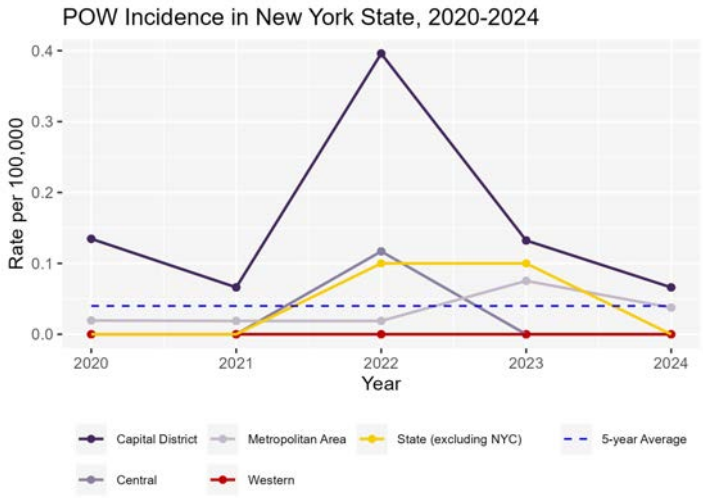


Figure 18: Incidence rate (cases per 100,000 residents) of POW by region in New York State, 2020-2024. NYC data is not included in this report.

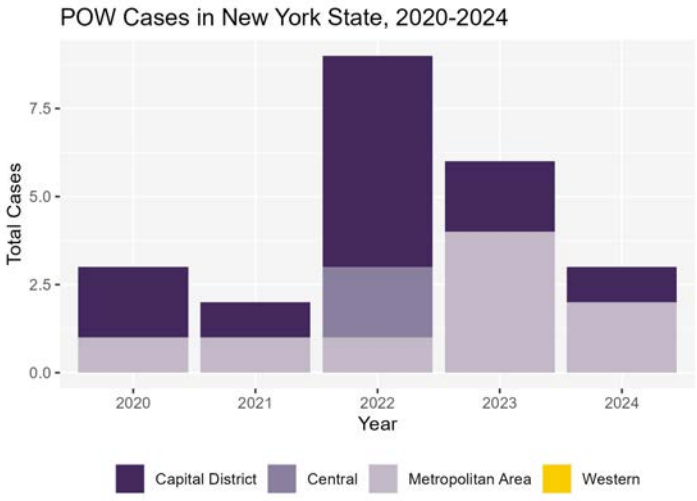


Figure 19: POW cases by region in New York State, 2020-2024. NYC data is not included in this report.

ADDITIONAL INFORMATION ABOUT POW:

POW CSTE surveillance case definition: https://ndc.services.cdc.gov/case-definitions/arboviral-diseases-neuroinvasive-and-non-neuroinvasive-2015/.

For more information about POW, please visit https://www.health.ny.gov/diseases/communicable/powassan/fact_sheet.htm.

ACTIVE TICK SURVEILLANCE IN NEW YORK STATE

Surveillance of tick populations in the environment is an important tool for assessing tick-borne disease risk and guiding disease prevention efforts. The New York State Department of Health (NYSDOH) conducts routine surveillance of tick populations throughout the state, focusing on *Ixodes scapularis,* or the blacklegged tick, which transmits the pathogens that cause anaplasmosis, babesiosis, Lyme disease, and Powassan virus disease (POW).

Throughout the year, ticks are systematically collected from public recreational areas and are then brought into the lab for analysis. Each tick is counted and identified by species and life stage, generating a detailed estimate of tick density for each collection site. Nymph and adult *Ixodes scapularis* ticks are separated and tested for pathogens which cause tick-borne disease, including *Anaplasmosis phagocytophilum*, *Babesia microti*, *Borrelia burgdorferi*, and Powassan/deer tick virus (POWv/DTV).

The information obtained from tick collection and testing improves our understanding of the tick life cycle and habitat and reveals disease risk patterns across geographic regions and from year to year. Active tick surveillance, together with human disease surveillance, can be used to predict future tick-borne disease risk, as well as assess and improve tick-borne disease prevention strategies.

2024 BY THE NUMBERS

- **Locations Sampled:** 263
- **Counties Sampled:** 56 (of 62)
- **Total ticks collected (all species):** 33,882
- ***I. scapularis* ticks collected:** 26,285
- **Total *I. scapularis* tested by qPCR quadplex:** 9,275
- **Total *I. scapularis* tested for POW/DTV:** 15,166

SURVEILLANCE DATA

- Active tick surveillance data can be found at **https://healthdata.ny.gov/**

New York State Tick Surveillance Sites, 2015-2024

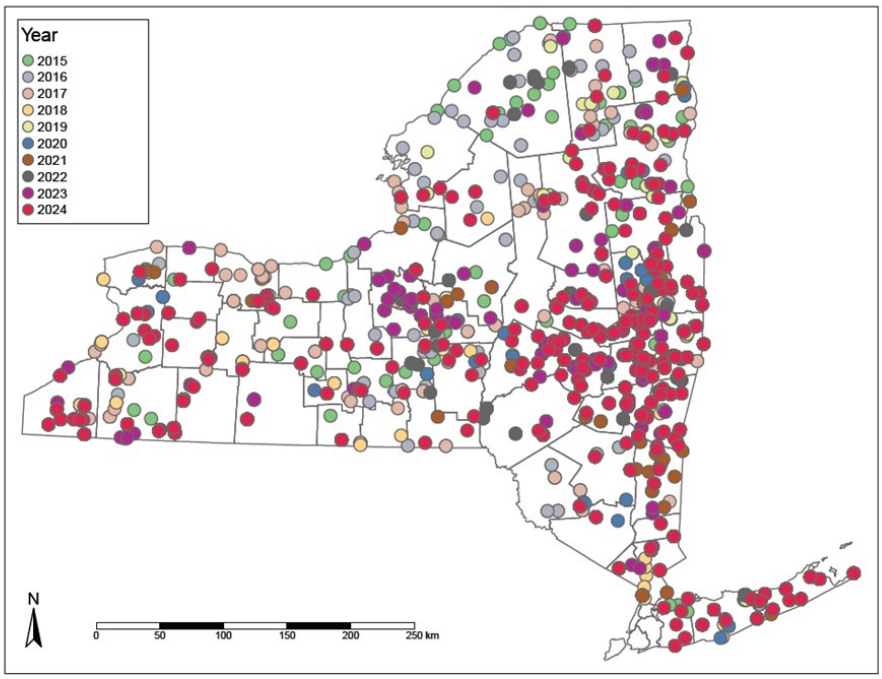


Figure 20: New York State tick surveillance sites (2015-2024). Locations sampled for host seeking ticks by NYSDOH Bureau of Communicable Disease Control research staff and collaborators. NYC data is not included in this report.

ACTIVE TICK-BORNE DISEASE SURVEILLANCE DATA AND RESOURCES:

Tick Risk Score map: https://www.health.ny.gov/diseases/communicable/lyme/risk_score_map.htm

More information about tick surveillance: health.ny.gov/tickfree

ACTIVE TICK SURVEILLANCE IN NEW YORK STATE

Between 2020-2024, *I. scapularis* nymph average density was highest in the Metropolitan Area region. The average prevalence of pathogens in host-seeking nymphs differs by region, but *B. burgdorferi* is the leading tick-borne pathogen identified in *I. scapularis* nymphs across all regions. *B. microti* is more prevalent in the Metropolitan Area region than in other regions.

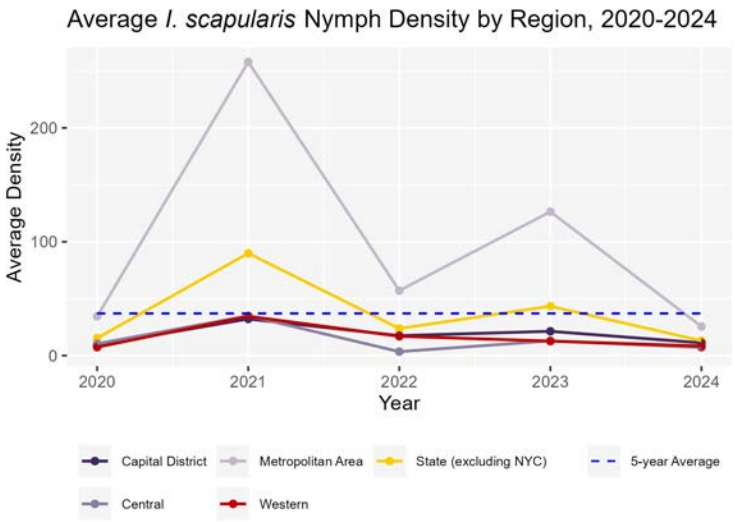


Figure 21: Average *I. scapularis* nymph density by region, 2020-2024. NYC data is not included in this report.

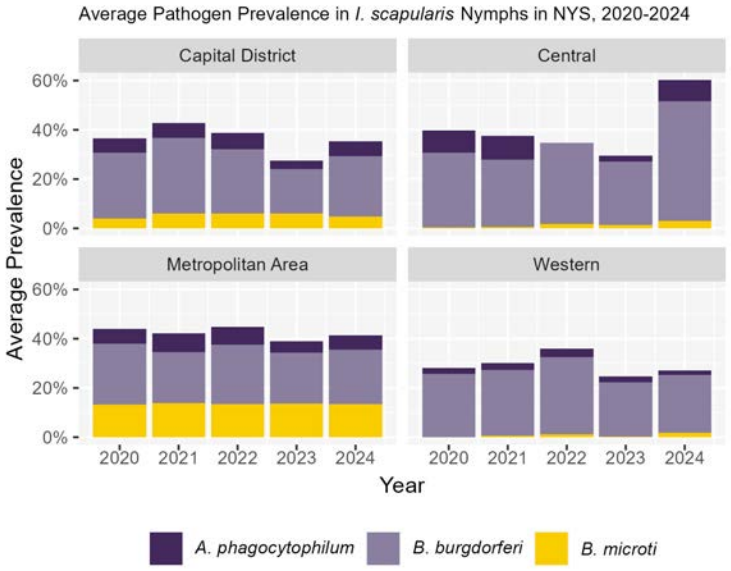


Figure 22: Prevalence of *B. burgdoferi*, *A. phagocytophilum*, and *B. microti* in host-seeking nymphs. NYC data is not included in this report.

ACTIVE POWASSAN VIRUS/DEER TICK VIRUS SURVEILLANCE

In 2024, Powassan virus (POWv)/deer tick virus (DTV) was detected in adult *I. scapularis* tick pools in the Metropolitan Area and Capital District regions. When adult tick pools test positive, it is assumed that one tick in the pool was positive. Minimum infection rate (MIR) is the ratio of the number of positive pools to the total number of adult ticks tested.

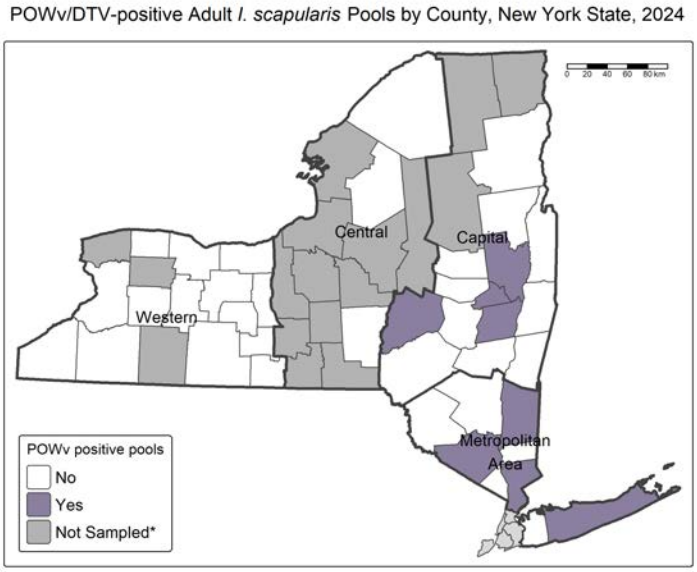


Figure 23: New York State counties with POWv/DTV-positive adult tick pools, 2024. **"Not Sampled" refers to counties where no sampling was conducted on a publicly accessible site.* NYC data is not included in this report.

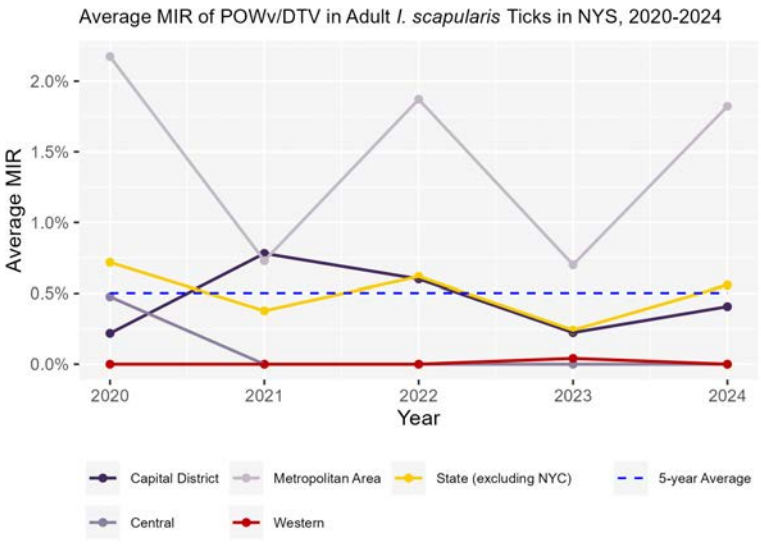


Figure 24: Average MIR of POWv/DTV in New York State, 2020-2024. NYC data is not included in this report.