



**Department
of Health**

Ticks and Tick-borne Disease in New York State

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Arthropod-borne Diseases

Arthropod-borne Diseases

- Diseases transmitted by mosquitoes, ticks, fleas, and other insects
- Found worldwide
- A total of 642,602 cases of arthropod-borne disease were reported in the U.S. and its territories from 2004 through 2016*



Tick-borne Diseases

- Number of reported tickborne disease cases more than doubled from 2004-2016
 - 7 new pathogens were discovered or recognized in the U.S. as being able to infect people



Tick-borne Diseases

- Why are case numbers increasing?
 - Expansion of areas where ticks are found
 - More pathogens
 - More people at risk (i.e., travelers)
 - Weather, environment, and climate

Tick-borne Diseases in NYS

Tick Talk

~30 species of ticks are found in NYS

10 species commonly bite humans

4 species can potentially transmit diseases (in New York)

Deer tick

Ixodes scapularis

American Dog tick

Dermacentor variabilis

Lone Star tick

*Amblyomma
americanum*

Woodchuck tick

Ixodes cookei



Tick-borne Disease Transmission



American Dog tick:



Rocky Mountain spotted fever



Lone Star tick:



Human Monocytic Ehrlichiosis (HME)



Deer (black-legged) tick:



Lyme disease

&

Babesiosis, Human Granulocytic Anaplasmosis (HGA), Deer Tick Virus (Powassan)

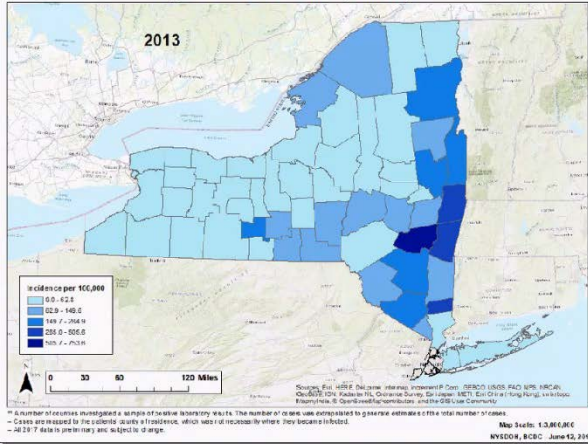


**Woodchuck tick:
(Groundhog tick)**

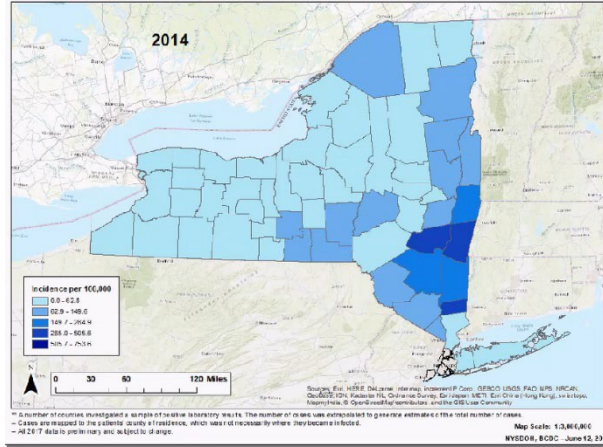


Powassan (Encephalitis) Virus

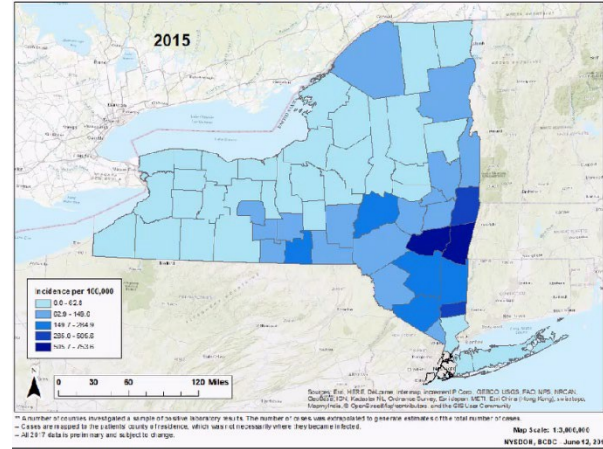
Lyme Disease Incidence Rates (2013-2017)**



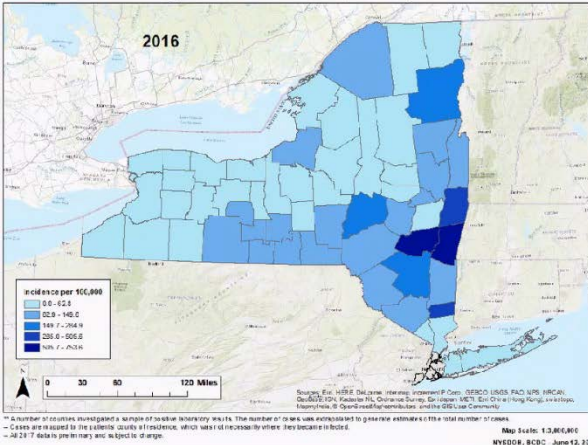
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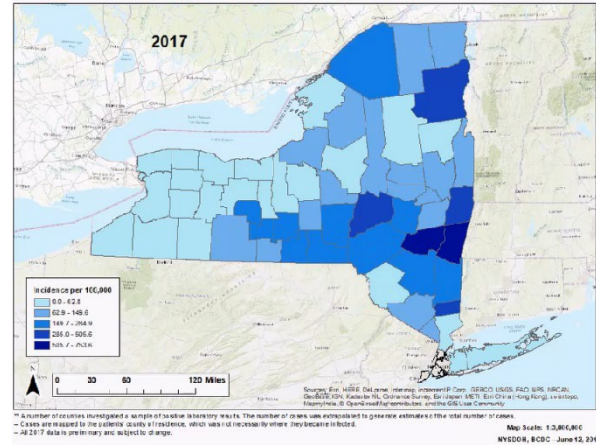
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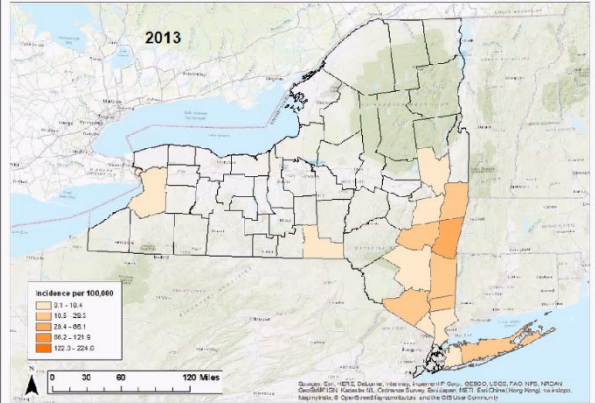
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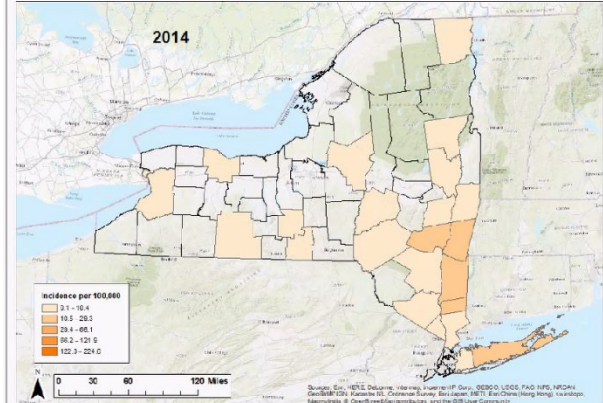


Babesiosis Incidence Rates (2013 - 2017)**



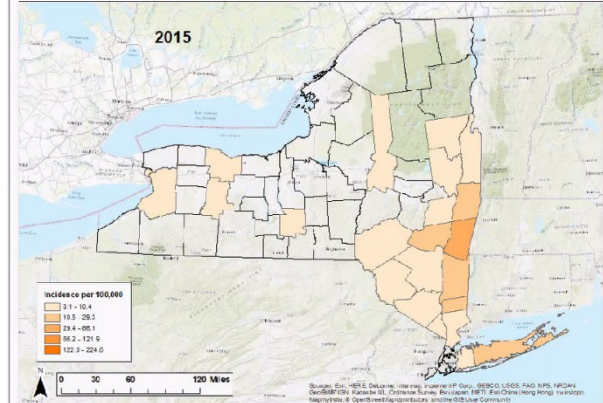
** Cases of Babesiosis are classified using the National Surveillance Case Definition (311)
 - Cases are mapped to the patient's county of residence, which was not necessary where they became infected.
 - All 2017 data is preliminary and subject to change.
 Map Scale: 10,389,369
 NYSDOH, BCDC - June 13, 2016

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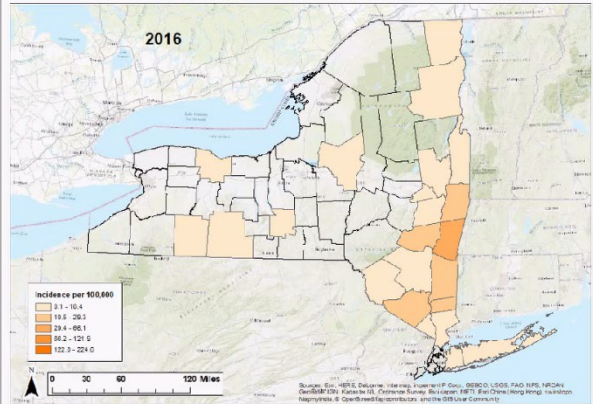
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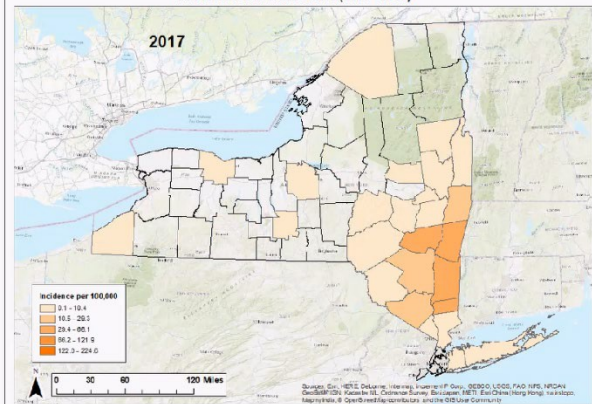
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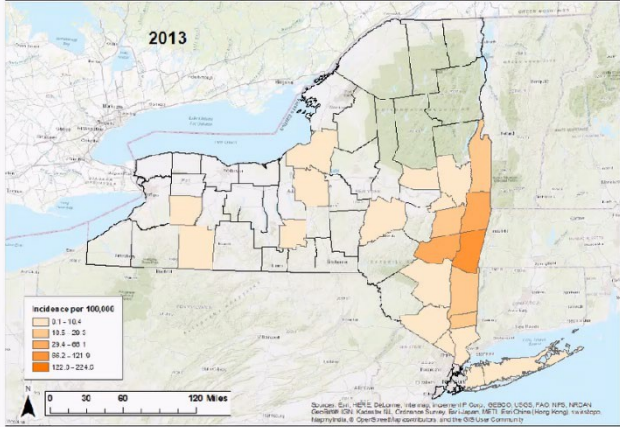
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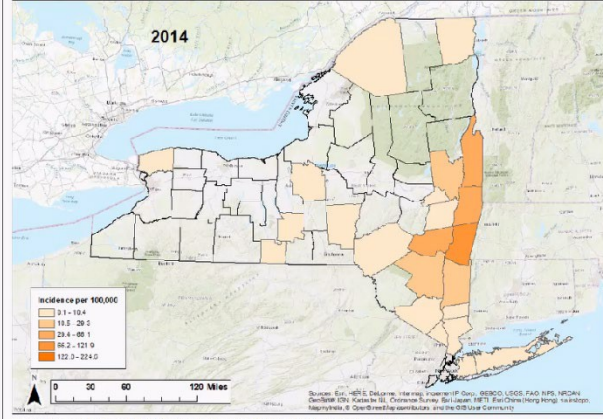


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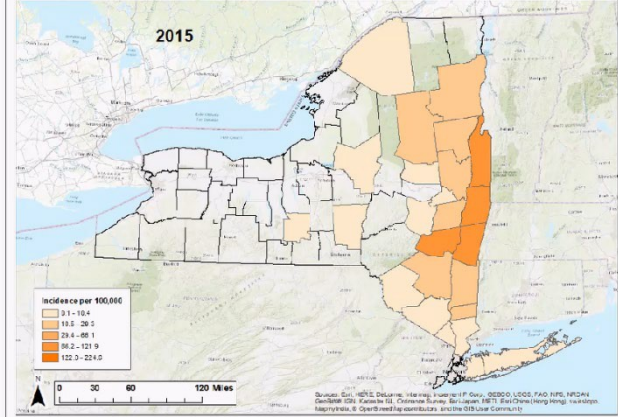
Human Granulocytic Anaplasmosis (HGA) Incidence Rates (2013 - 2017)**



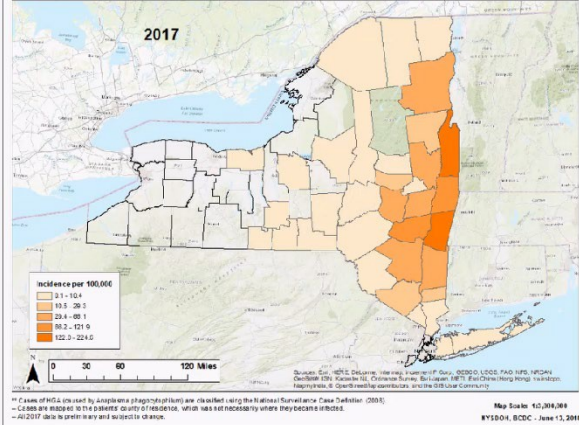
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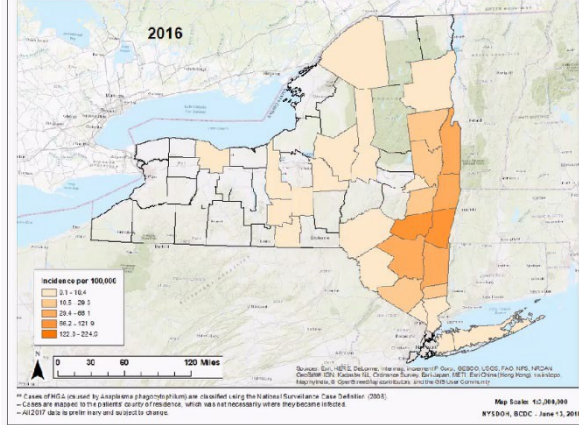
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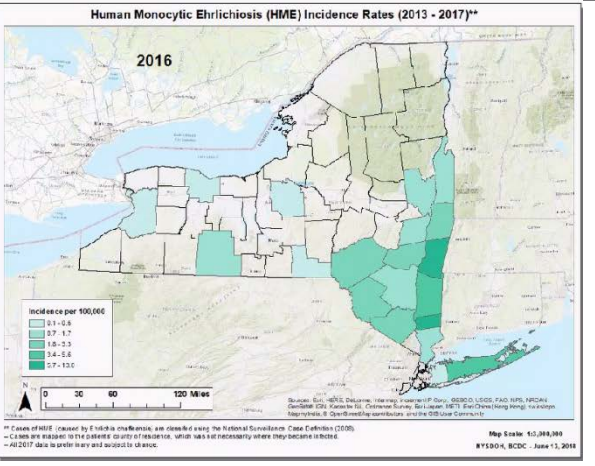
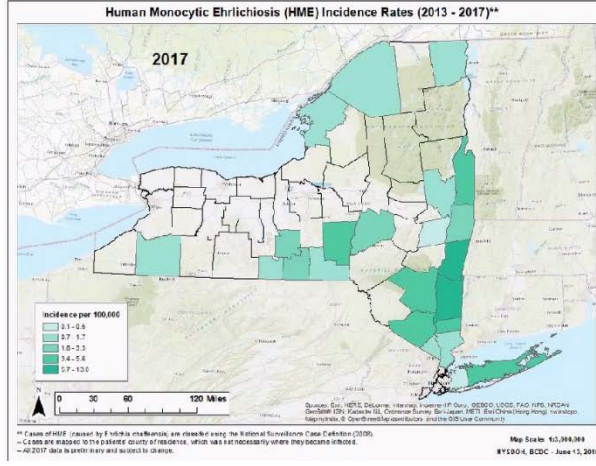
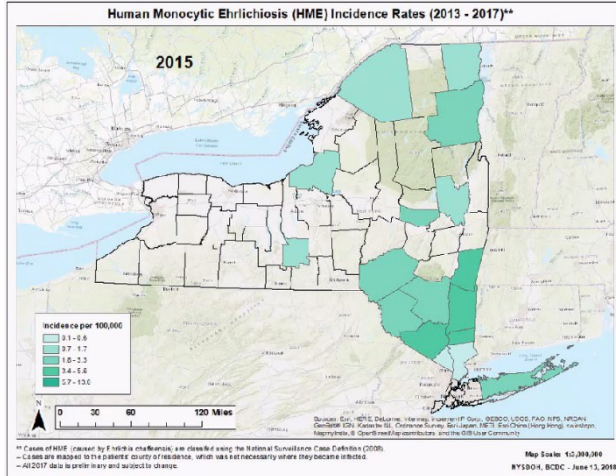
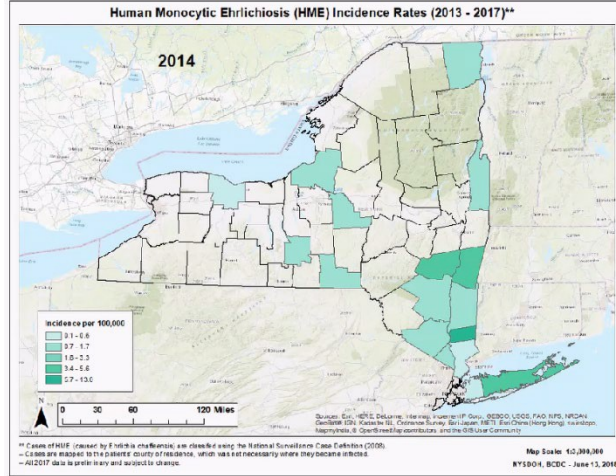
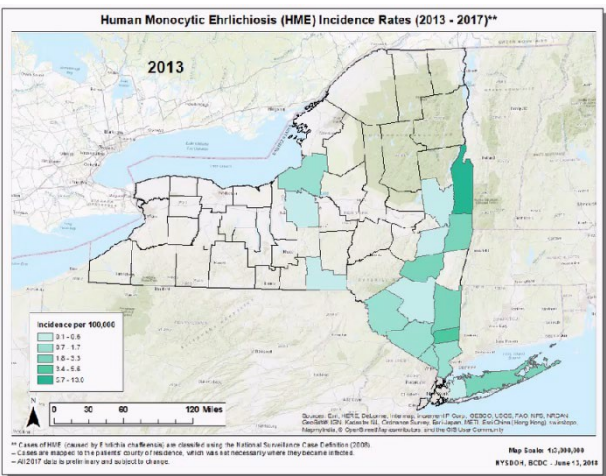


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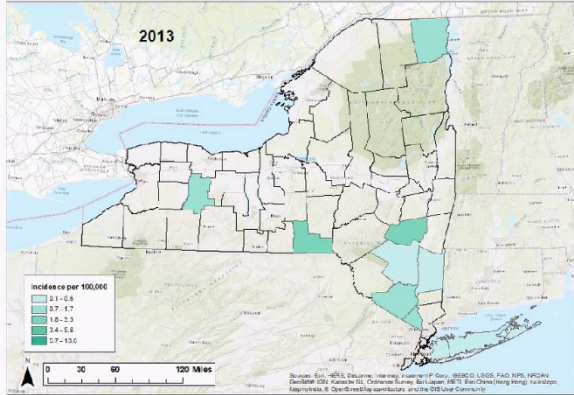


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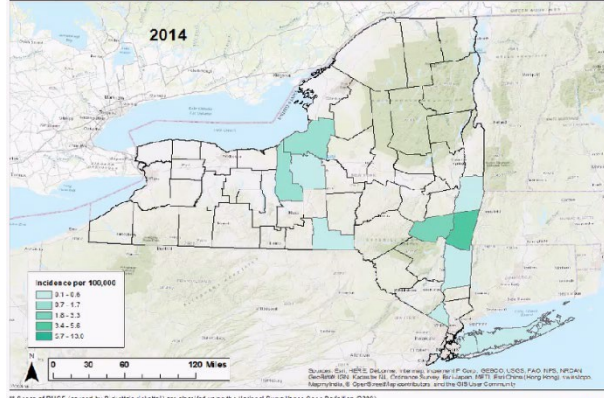


Rocky Mt. Spotted Fever (RMSF) Incidence Rates (2013 - 2017)**



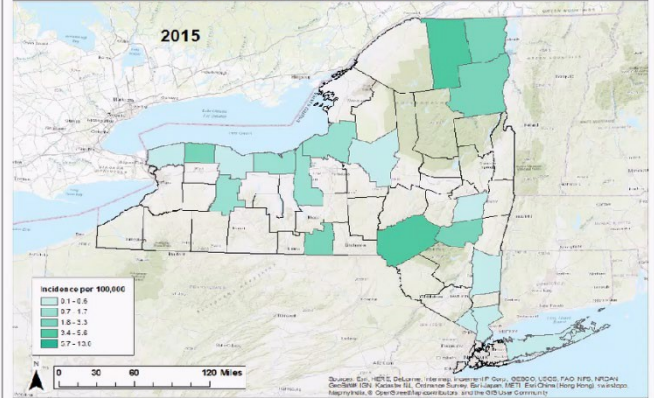
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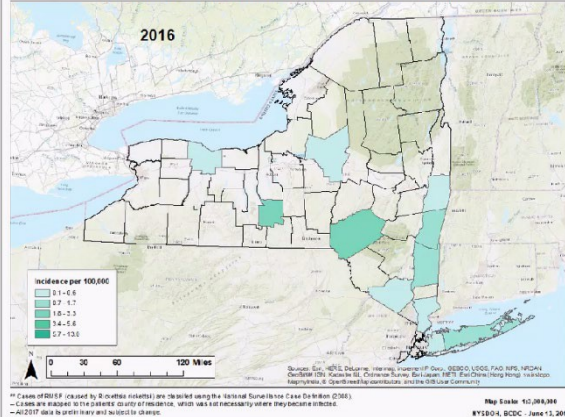
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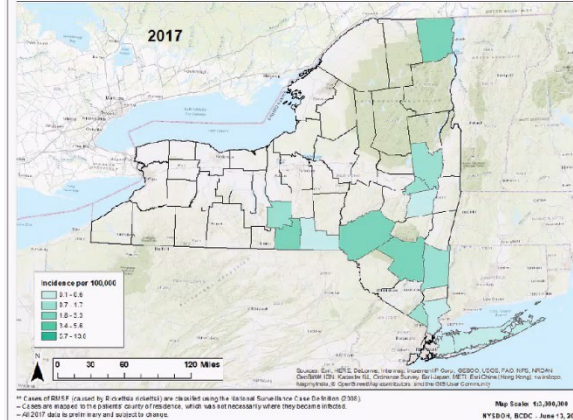
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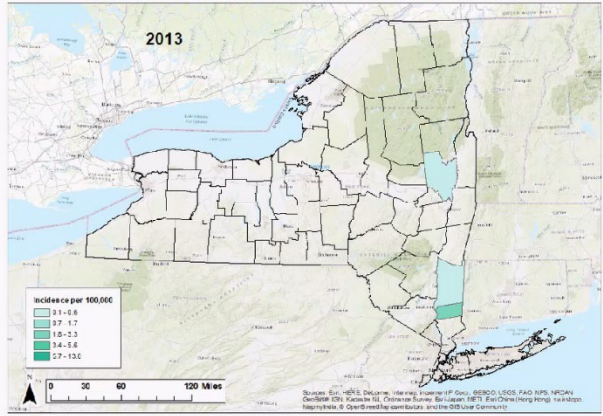
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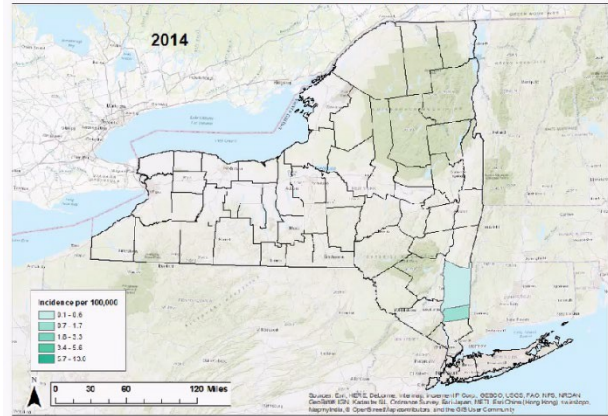
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Powassan (POW) Virus Incidence Rates (2013 - 2017)**



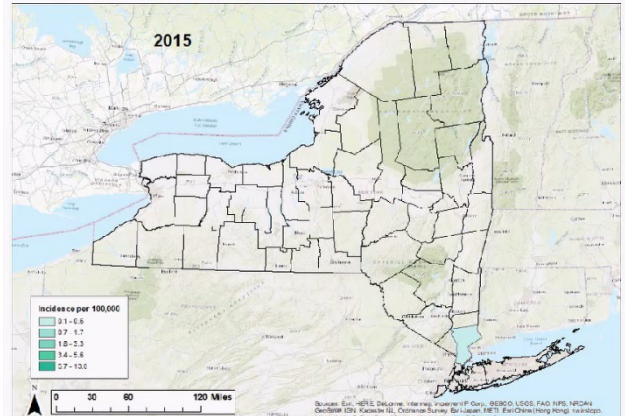
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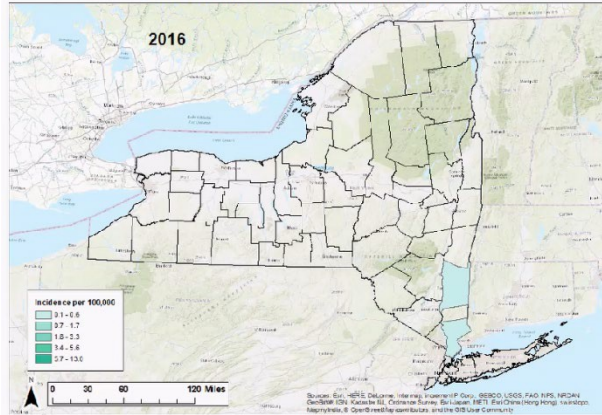
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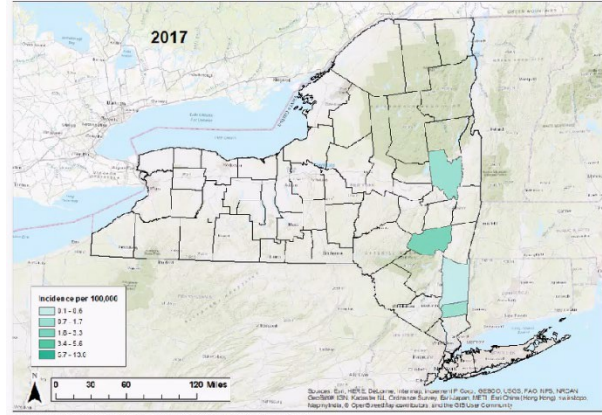
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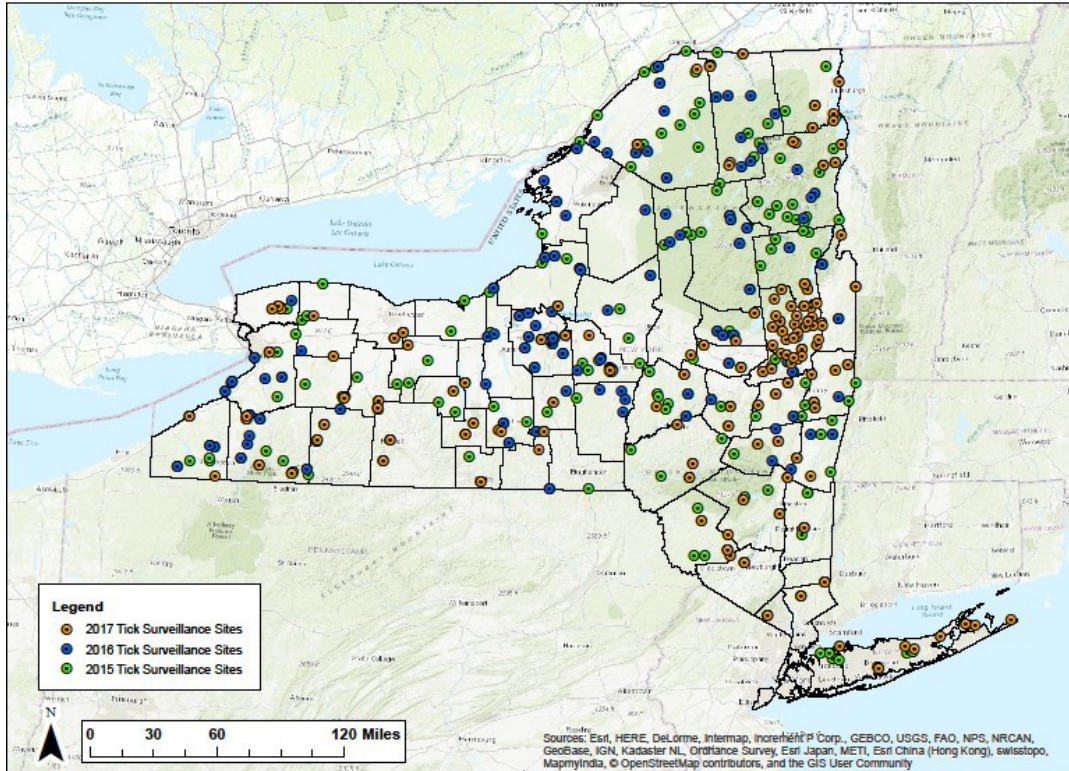
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Statewide Tick-borne Pathogen Surveillance Initiative

- NYSDOH has conducted *Ixodes scapularis* monitoring across NY since 2008
 - Standardized dragging and flagging surveys
 - Some locations sampled annually, some rotationally (every 2-5 years)
 - Every county sampled from 2008-2016
 - Up to 50 ticks per life-stage tested per location
 - Nearly 70,500 individual ticks tested 2008-2016
- Results shared with LHDs, other State agencies, medical providers, veterinarians, and general public



NYS Tick Collection Sites (2015 - 2017)**



** Locations sampled for host-seeking ticks by NYSDOH BCDC research staff and collaborators.

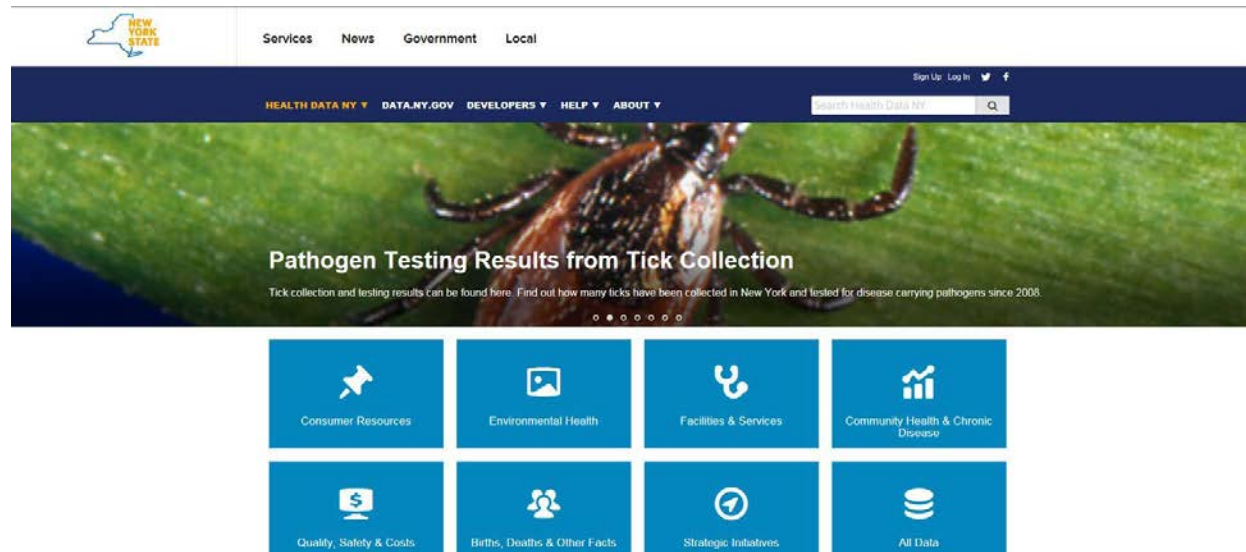
2017 By The Numbers

- **Locations Sampled: 302**
- **Counties Sampled: 55 (of 62)**
- **I. scapularis ticks collected: 24,916**
- **Total I. scapularis tested by qPCR quadplex: 8,267**
- **Total I. scapularis tested for POW/DTV: 16,649**

Active Tick Surveillance– Results

Health Data NY

<https://healthdata.ny.gov/>



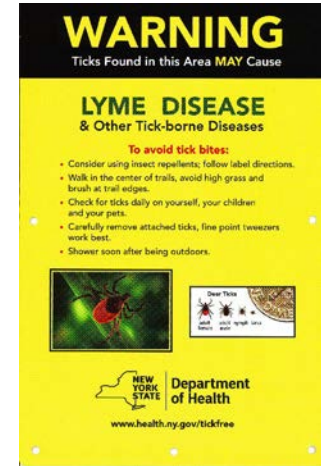
The screenshot displays the Health Data NY website interface. At the top left is the New York State logo. A navigation bar includes links for Services, News, Government, and Local. A dark blue header contains the text 'HEALTH DATA NY', 'DATA.NY.GOV', 'DEVELOPERS', 'HELP', and 'ABOUT', along with a search bar and social media icons for Sign Up, Log In, Twitter, and Facebook. The main content area features a large image of a tick on a green leaf. Below the image, the heading 'Pathogen Testing Results from Tick Collection' is displayed, followed by a sub-heading: 'Tick collection and testing results can be found here. Find out how many ticks have been collected in New York and tested for disease carrying pathogens since 2008.' Below this is a grid of eight blue navigation buttons with white icons and text: Consumer Resources, Environmental Health, Facilities & Services, Community Health & Chronic Disease, Quality, Safety & Costs, Births, Deaths & Other Facts, Strategic Initiatives, and All Data.

Health Data NY

- Dataset provides the results from collecting and testing black-legged (deer) ticks
- Used to educate people that there is a risk of coming in contact with ticks and tick-borne diseases
- Data only provide tick infections at a precise location and at one point in time. Both measures, tick population density and percentage, can vary greatly within a very small area and within a county
 - Data should not be used to broadly predict disease risk for a county

Education and Outreach- Highlights

- On-line media campaigns
 - ‘How to safely remove a tick’ video
 - Video series on NYSDOH
- Distribution of educational materials
 - Warning signs for public lands
 - ‘How to safely remove a tick’/ ID tri-fold cards
- Collaboration with NYS Education Department
 - Development and distribution of a ‘Tick and Tick-borne Disease Education in Schools Toolkit’



Prevention Messaging

- Dress appropriately for outdoor activities
- Frequent tick checks; shower after coming indoors
- Consider using repellents
 - DEET, picaridin, or IR3535
 - Use only what and how much you need for your situation
- Prompt and proper removal of attached ticks
 - Fine-tipped tweezers!!
 - <https://www.youtube.com/watch?v=oGrK4ZKUfhQ>

Contact Information

Vector-borne Disease Unit

Bureau of Communicable Disease Control

NYSDOH

518.473.4439

bcdc@health.ny.gov