New York State-Specific Trends

Prevention for Patients
Ticks In New York:

- **~30 species** of ticks are found in New York State.
- **10 species** commonly bite humans.
- **4 species** can potentially transmit disease (in New York)

Deer tick  
*Ixodes scapularis*

American Dog tick  
*Dermacentor variabilis*

Lone Star tick  
*Amblyomma americanum*

Woodchuck tick  
*Ixodes cookei*
Fast Tick Facts:

• Ticks crawl—they cannot not jump or fly

• They prefer shady, grassy, wooded areas along trails with abundant wildlife

• They must have direct contact with a host (person or animal) to attach and feed

• Unless removed, ticks attach to a host and feed for several days
  – change appearance over feeding time.
# Tick-borne Diseases in New York State:

<table>
<thead>
<tr>
<th>Disease (causative agent)</th>
<th>Reported NY cases 2001 – 2016*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lyme disease ((Borrelia burgdorferi))</td>
<td>79,548</td>
</tr>
<tr>
<td>Human Granulocytic Anaplasmosis ((Anaplasma phagocytophilum))</td>
<td>4,795</td>
</tr>
<tr>
<td>Babesiosis ((Babesia microti))</td>
<td>4,131</td>
</tr>
<tr>
<td>Human Monocytic Ehrlichiosis ((Ehrlichia chaffeensis))</td>
<td>1,097</td>
</tr>
<tr>
<td>Rocky Mountain spotted fever ((Rickettsia rickettsii))</td>
<td>277</td>
</tr>
<tr>
<td>Powassan encephalitis (Powassan virus or Deer Tick virus)</td>
<td>25</td>
</tr>
<tr>
<td>Tick-borne relapsing fever ((Borrelia miyamotoi))</td>
<td>10**</td>
</tr>
<tr>
<td>Tularemia ((Francisella tularensis))</td>
<td>7</td>
</tr>
</tbody>
</table>

* Reported to the NYSDOH by medical providers and clinical laboratories
** Identified in a NYSDOH retrospective and prospective study of patients screening negative for anaplasmosis
Annual Proportion of Lyme Disease Cases by Region in New York State (Excluding New York City) 1986-2013
Lyme disease in New York State 1986 – 2005 by zip code

Incidence per 100,000 population

0  50  100  500  1000+
Incidence of Lyme disease per 100,000 population in Adirondack counties, 2002 versus 2012.

2002
37 ADK cases
5,476 statewide

2012
698 ADK cases
5,344 statewide
Incidence of Lyme disease per 100,000 population in Central New York counties, 2002 versus 2012

2002
42 CNY cases
5,476 statewide

2012
462 CNY cases
5,344 statewide
Anaplasmosis incidence rate per 100,000 population in New York State* by ZIP code

1997

Incidence rate per 100,000
- <= 10.0
- > 10.0 – 25.0
- > 25.0 – 50.0
- > 50.0 – 100.0
- > 100.0

n = 63

* exclusive of New York City
Anaplasmosis incidence rate per 100,000 population in New York State* by ZIP code

2013

Incidence rate per 100,000
- <= 10.0
- > 10.0 – 25.0
- > 25.0 – 50.0
- > 50.0 – 100.0
- > 100.0

n = 454

* exclusive of New York City
Babesiosis incidence rate per 100,000 population in New York State* by ZIP code

Incidence rate per 100,000
- <= 10.0
- > 10.0 – 25.0
- > 25.0 – 50.0
- > 50.0 – 100.0
- > 100.0

* exclusive of New York City

n = 19
Anaplasmosis Cases by Region of Residence, 2010-2017*
(meeting CSTE case definition, excluding NYC)
*2017 data subject to change
Babesiosis incidence rate per 100,000 population in New York State* by ZIP code

2013

Incidence rate per 100,000
- <= 10.0
- > 10.0 – 25.0
- > 25.0 – 50.0
- > 50.0 – 100.0
- > 100.0

n = 459

* exclusive of New York City
Ehrlichiosis incidence rate per 100,000 population in New York State* by ZIP code

1997

Incidence rate per 100,000

- <= 10.0
- > 10.0 – 25.0
- > 25.0 – 50.0
- > 50.0 – 100.0
- > 100.0

* exclusive of New York City
Ehrlichiosis incidence rate per 100,000 population in New York State* by ZIP code

2013

Incidence rate per 100,000

- <= 10.0
- > 10.0 – 25.0
- > 25.0 – 50.0
- > 50.0 – 100.0
- > 100.0

n = 92

* exclusive of New York City
Powassan Cases 2005 - 2017
NYSDOH Tick Surveillance Sites 2015 and 2016
Sanitary Code: 18

NEW YORK STATE DEPARTMENT OF HEALTH

Communicable Disease Reporting Requirements

Reporting of suspected or confirmed communicable diseases is mandated under the New York State Sanitary Code (10NYCRR 2.10.2.14). The primary responsibility for reporting rests with the physician; moreover, laboratories (PHL 2102), school nurses (10NYCRR 2.12), day care center directors, nursing homes/hospitals (10NYCRR 405.3d) and state institutions (10NYCRR 2.10a) or other locations providing health services (10NYCRR 2.12) are also required to report the diseases listed below.

Anaplasmosis
Amebiasis
Animal bites for which rabies prophylaxis is given
Anthrax
Arboviral infection
Babesiosis
Botulism
Brucellosis
Campylobacteriosis
Chancroid
Chlamydia trachomatis infection
Cholera
Cryptosporidiosis
Cyclosporiasis
Diphtheria
E.coli 0157:H7 infection
Ehrlichiosis
Encephalitis

1. Local health department must be notified prior to initiating rabies prophylaxis.
2. Diseases that are possible indicators of bioterrorism.
3. Including, but not limited to, infections caused by eastern equine encephalitis virus, western equine encephalitis virus, West Nile virus, St. Louis encephalitis virus, La Crosse virus, Powassan virus, Jamestown Canyon virus, dengue and yellow fever.
4. Positive shigatoxin test results should be reported as presumptive evidence of disease.
5. Only report cases with positive cultures from blood, CSF, joint, peritoneal or plural fluid. Do not report cases with positive cultures from skin, saliva, sputum or throat.
6. Proposed addition to list.

Influenza, laboratory-confirmed
Legionellosis
Listeriosis
Lyme disease
Lymphogranuloma venereum
Malaria
Measles
Melioidosis
Meningitis
Aspert or viral
Haemophilus
Meningococcal
Other (specify type)
Meningoccemia
Monkeypox
Mumps
Pertussis
Plague
Poliomyelitis

Pertussis
Q Fever
Rocky Mountain spotted fever
Rubella
Salmonellosis
Severe Acute Respiratory Syndrome (SARS)
Shigatoxin-producing E.coli
(STEM)
Shigellosis
Smallpox
Staphylococcus aureus (due to strains showing reduced susceptibility to vancomycin)
Staphylococcal enterotoxin B poisoning
Streptococcal infection (invasive disease)
Group A beta-hemolytic strep
Group B strep
Streptococcus pneumoniae
Syphilis, specify stage
Tetanus
Toxic shock syndrome
Transmissible spongiform encephalopathies (TSE)
Trichinosis
Tuberculosis current disease (specify site)
Tularemia
Typhoid
Vaccinia disease
Vibriosis
Viral hemorrhagic fever
Yersiniosis

7. Any non-treponemal test ≥ 1:16 or any positive prenatal or delivery test regardless of titer or any primary or secondary stage disease, should be reported by phone, all others may be reported by mail.
8. Including Creutzfeldt-Jakob disease. Cases should be reported directly to the New York State Department of Health Alzheimer's Disease and Other Dementias Registry at (518) 473-7817 upon suspicion of disease. In NYC cases should also be reported to the NYCDOHMH.
9. Persons with vaccinia infection due to contact transmission and persons with the following complications from vaccination: eczema vaccinatum, erythema multiforme major or Stevens-Johnson syndrome, fatal vaccinia, generalized vaccinia, inadvertent inoculation, ocular vaccinia, post-vaccinal encephalitis or encephalomyelitis, progressive vaccinia, pyogenic infection of the infection site, and any other serious adverse events.
Personal protection:

Correct Tick Removal Technique:

Grasp tick with tweezers, as close to the skin as possible (i.e. by the mouthparts or “head” of the tick)

Pull slowly, with a constant motion away from the skin (perpendicular to skin surface)

Do not use petroleum jelly, gasoline, lit match or cigarette, nail polish or any other method.

You may be increasing your risk of acquiring a tick-borne disease!
Personal protection for patients:

- Avoid wooded and brushy areas with high grass and leaf litter
- Walk in the center of trails
- Consider the use of repellents, following label instructions
  - DEET, Picaridin, IR3535 on skin
  - Use amount appropriate for time outdoors—more is not always better!
  - Permethrin on clothes
- Tick checks
- Bath or shower ASAP
- Clothes in hot dryer for 10 minutes
Resources

http://www.health.ny.gov/diseases/communicable/lyme/
Landscape management:

Before

After

Landscape management:

Before

After

* CT Agricultural Experimental Field Station
For More Information

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Reporting & Surveillance Process

Exposure → Disease → Provider → Lab → Local Health Department → CDC
Lyme Disease Surveillance Case Definition

**Suspected**
A case of EM where there is no known exposure (as defined above) and no laboratory evidence of infection (as defined above), OR
A case with evidence of infection but no clinical information available (e.g., a laboratory report).

**Probable**
Any other case of physician-diagnosed Lyme disease that has laboratory evidence of infection (as defined above).

**Confirmed**
A case of EM with exposure in a high incidence state (as defined above), OR
A case of EM with laboratory evidence of infection and a known exposure in a low incidence state, OR
Any case with at least one late manifestation that has laboratory evidence of infection.

State DOH reviews ("investigates") positive laboratory reports and doctor reports of Lyme disease, and classifies them into criteria above.