Commonwealth of Massachusetts
Department of Public Health

Helping People Lead Healthy Lives In Healthy Communities

Ticks and Tick-borne Disease in Massachusetts

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Factors Associated with Increasing Risk of Tick-borne Diseases

- Increased deer population
- Increased black-legged tick population
- Fragmented forest environment
  - Increased white-footed mouse population
  - Increased risk of mouse infection
  - Expansion of habitat
- Amplification of the pathogens
- More people exposed to “ticky” habitat

Female dog tick

Female deer tick

Female lone star tick

Male dog tick

Male deer tick

Male lone star tick

Tick-borne Diseases

Transmitted by *Ixodes scapularis*

- Lyme Disease (*Borrelia Burgodorferi*)
  - Early Localized Disease
  - Early Disseminated Disease
  - Late or Chronic Disease
- Babesiosis (*Babesia microti*)
  - Fever, chills, anemia
  - At greatest risk: asplenia, immunocompromised
- Human Granulocytic Anaplasmosis (*Anaplasma phagocytophilum*)
  - Fever, headache, muscle aches, chills, sweating, nausea, and vomiting

Tick-borne Diseases

Transmitted by *Ixodes scapularis*

- *Borrelia miyamotoi*
  - Newly recognized as a human pathogen
  - Clinically resembles HGA
- Powassan/Deer Tick Virus
  - Flavivirus related to WNV
  - Neuroinvasive: meningitis/encephalitis

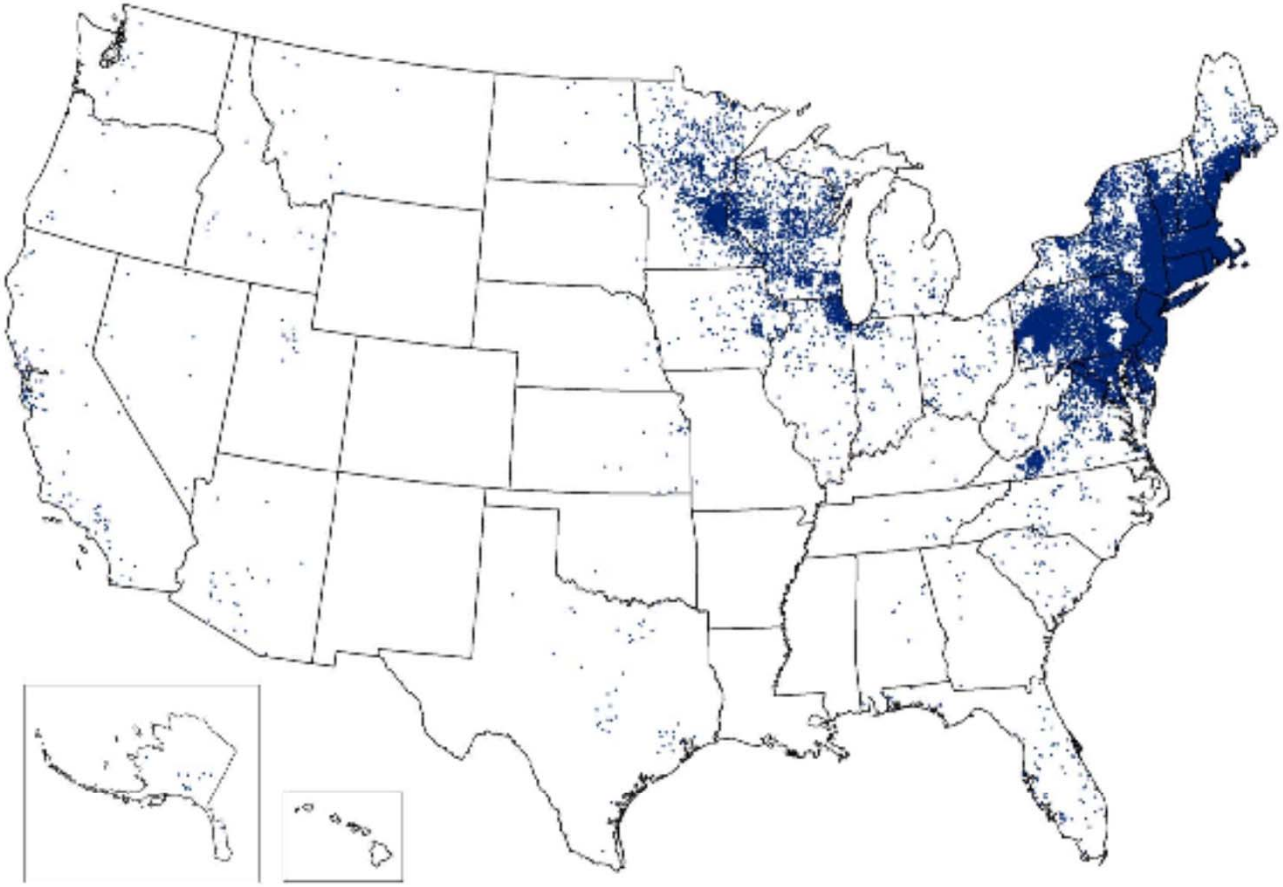
Tick-borne Diseases

Spread by *Dermacentor variabilis*

- Rocky Mountain spotted fever (*Rickettsia rickettsii*)
  - Fever, rash, severe headache, myalgia, confusion, photophobia, nausea, vomiting and anorexia
- Tularemia (*Francisella tularensis*)
  - Symptoms dependent upon route of exposure and form of disease
  - Glandular, ulceroglandular, typhoidal, oculoglandular, pharyngeal and pneumonic

Reported Cases of Lyme Disease—United States, 2013

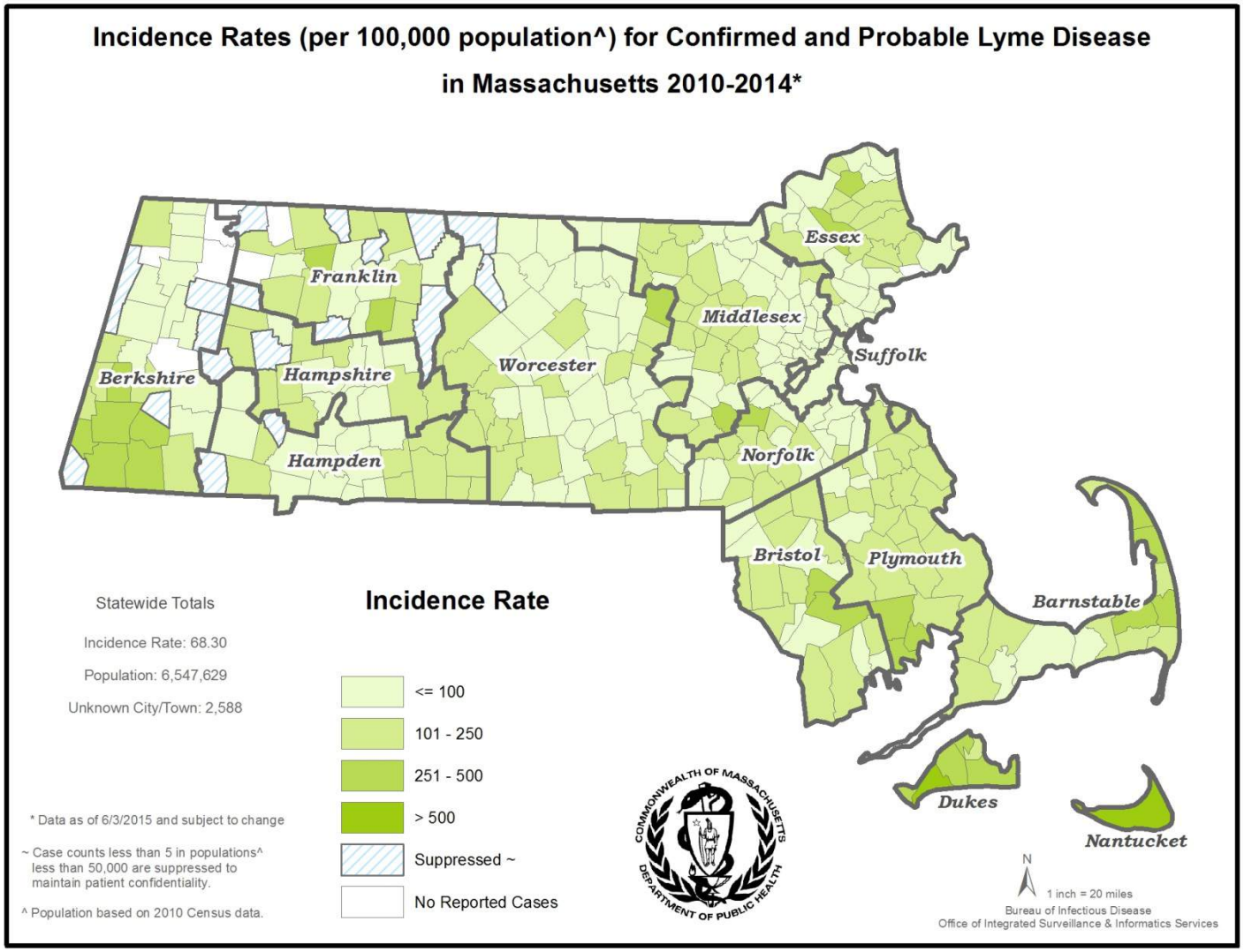
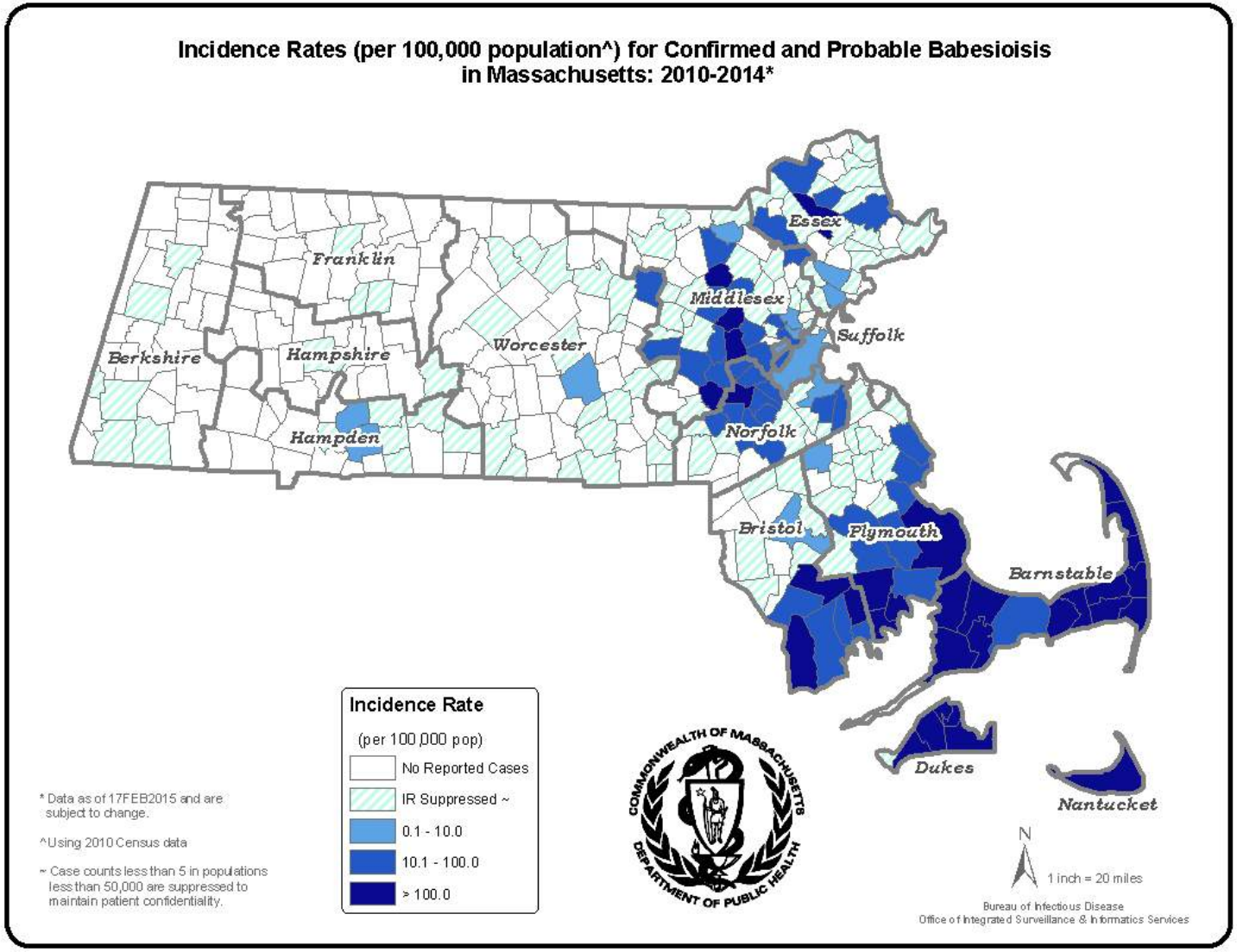
One dot is placed randomly within the county of residence for each confirmed case. Though Lyme disease cases have been reported in nearly every state, cases are reported based on the county of residence, not necessarily the county of infection.



1 dot placed randomly within county of residence for each confirmed case

National Center for Emerging and Zoonotic Infectious Diseases
Division of Vector borne Diseases | Bacterial Diseases Branch

Incidence Rates for Lyme Disease in MA 2010-2014



Incidence Rates for Babesiosis in MA 2010-2014