Commonwealth of Massachusetts

Department of Public Health

MEHA:
EEE 2020 Overview

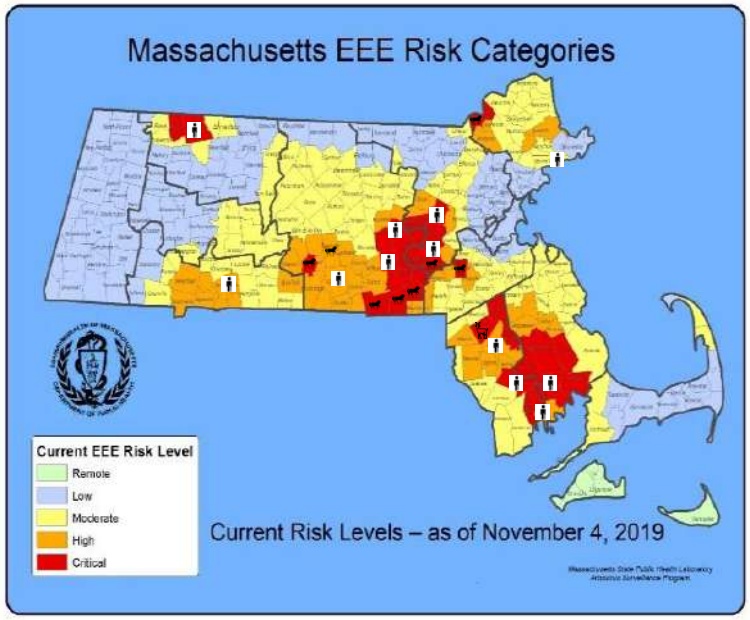
June 24, 2020

EEE: Setting the Stage

- EEE is a rare but serious mosquito-borne disease
  - Up to 50% mortality
  - Up to 80% of survivors left with permanent neurologic damage
  - All ages can be affected, including children

- 2019 was an active EEE season and likely the beginning of a 2-3 year cycle
  - 12 human cases, 6 deaths

- MDPH/MDAR worked over the winter to:
  1. Conduct an Adulticide Product Review
  2. Identify legislative reforms
  3. Identify critical prevention and response actions
  4. Develop actions and recommendations



2020 Plan: Updates in 5 Key Areas

Communications: to maximize adoption of personal prevention behaviors

- DPH will initiate communication with camps, schools and sports organizations in early June, promoting the use of bug spray
- DPH public awareness campaign launched June 1

Surveillance/Trapping: to drive use of all prevention tools

- DPH will add trapping locations, expanding its surveillance efforts
- DPH working with MCPs to reduce time between trapping and testing

Larviciding: a targeted mitigation tool

- MDAR is coordinating early in the season with mosquito districts to conduct aggressive, targeted larviciding operations
- MDAR will implement Larviciding Product Choice Field Trials

Adulticiding: can be targeted or widespread mitigation tool

- Upon decision to spray, contractors will have assets & personnel in place w/in 3 days with 2 aircraft for over 250,000 acres

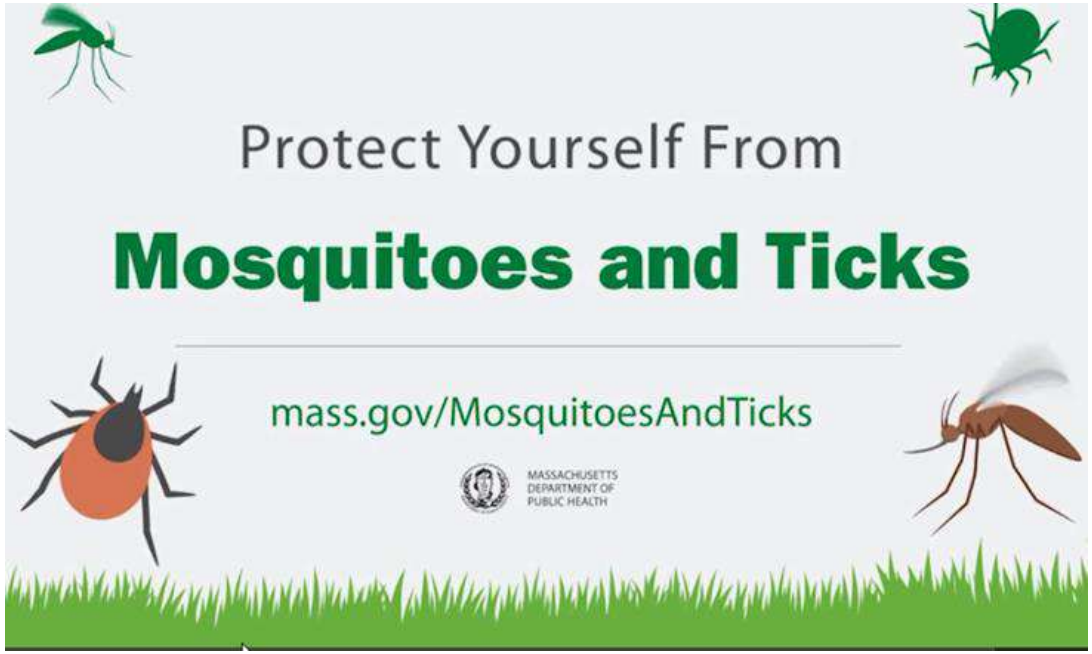
Statewide Mosquito Control *(long-term plan)*

Communications with LBOH

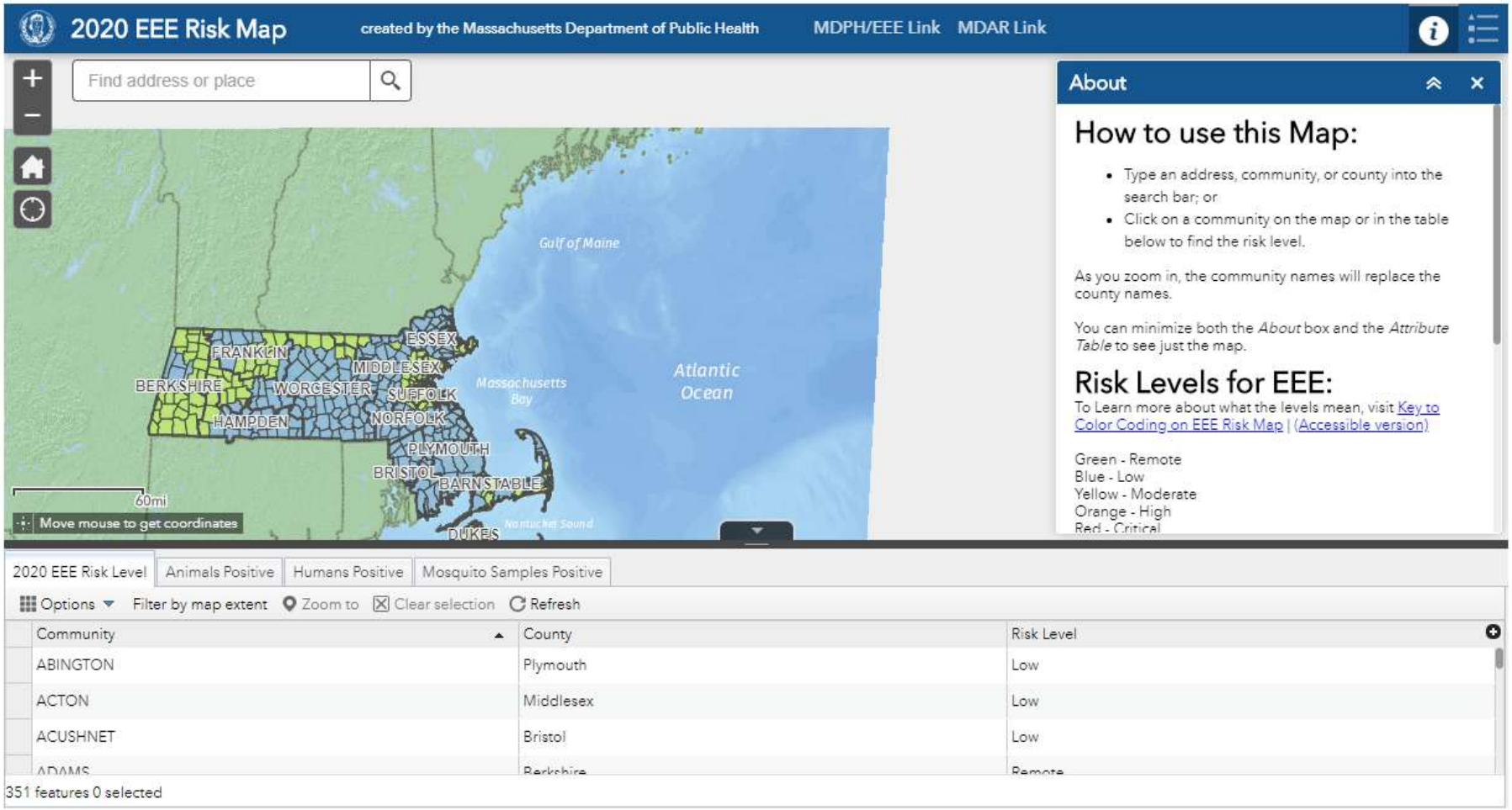
- **Multiple methods**
  - Routine communication to Arbovirus Coordinators through HHAN
  - Initial positive findings in your town – call to Arbovirus Coordinators
  - Non-urgent summary communications will go to Arbovirus Coordinators through HHAN and through OLRH listserv
  - Urgent communications affecting multiple communities will go to all LBOH HHAN members and listserv

- **Arbovirus Coordinators**
  - Really need to have 24/7 contact info
  - Share info with others in your agency and town officials

Public Communications – Sample Materials



Web site



What does your city or town's EEE risk level mean? View the Key to Color Coding on EEE Risk Map | (Accessible version)

Larviciding

- **Timing of Applications**: Operations were performed using helicopters or fixed wing aircraft for aerial applications and by-hand using backpack sprayers during April and May.
- **Targeted Areas**: 19,600 Acres identified in 110 MCD member Towns targeted for larviciding treatments throughout Barnstable, Berkshire, Bristol, Essex, Hampden, Hampshire, Middlesex, Norfolk, Plymouth and Worcester counties.
- **New for 2020, Product Choice Field Trials:** MCDs coordinating to conduct field trials using 3 different larviciding products to determine effectiveness of early spring treatments. Water sample testing for concentration of larvicide present in crypts and other water sources will measure efficacy of the products. This research seeks to expand available tools for use in EEE environments and provide data/information to DFW in relation to habitat restrictions.

- **Challenges - Non-member Towns**: An additional 25 Towns identified for treatment however, as the Towns have **not** joined an MCD, MGL Chapter 252 restricts the Commonwealth's ability to treat those communities. Since the 2019 season, 5 towns (Grafton, South Hadley, Southampton, Holyoke and Rowe) have joined an MCD.

Aerial spray decision making

- **Mosquito abundance – how large are the populations of concern?**
- **Mosquito infection rates – how much EEE virus is in the populations?**
- **Geography – is risk widespread +/- occurring in areas where truck-based mosquito control is not available or unlikely to be effective due to habitat?**
- **Weather**
- **Time of season**

Aerial spray decision-making inputs:

- DPH – risk assessments and geographic distribution of virus
- MDAR/State Reclamation & Mosquito Control Board – pesticide regulation and subject matter expertise
- Mosquito Control Districts – field condition awareness and mosquito control expertise
- Mosquito Advisory Group – mosquito control expertise advisory group

Additional Outreach

- **Groups to be engaged**
  - State Elected Officials (Legislators)
  - LBOH
  - Environmental / Specialized Groups
  - Massachusetts Municipal Association
  - Coalition for Local Public Health & MHOA & MEHA
  - Hospitals and Medical Providers
  - Camps
  - Schools
  - Child Care
  - Athletics / Sports Leagues

LBOH Toolkit

- **Items for inclusion**
  - Presentation – for use by LBOHs to educate communities
  - DRAFT press releases
  - DRAFT reverse 9-1-1 scripts
  - Definitions
  - Talking Points on key issues
  - Template IPM plan?
  - Template language for mosquito control notification?
  - Links to EPA repellent tool
  - Dawn calendar
  - What else??

Definitions/Terminology

EEE Common Acronyms / Definitions & Terminology

Amplification Cycle: Enzootic mosquito vectors take up and pass arbovirus to naïve birds. The viral loads build in the bird population allowing more mosquito vectors to acquire the virus. As abundance of infected birds increase so do does the likelihood that a bridge vector will acquire and transmit the virus.

Applicator: An individual that is applying pesticides. With reference to mosquito control, this would be an applicator licensed through MDAR

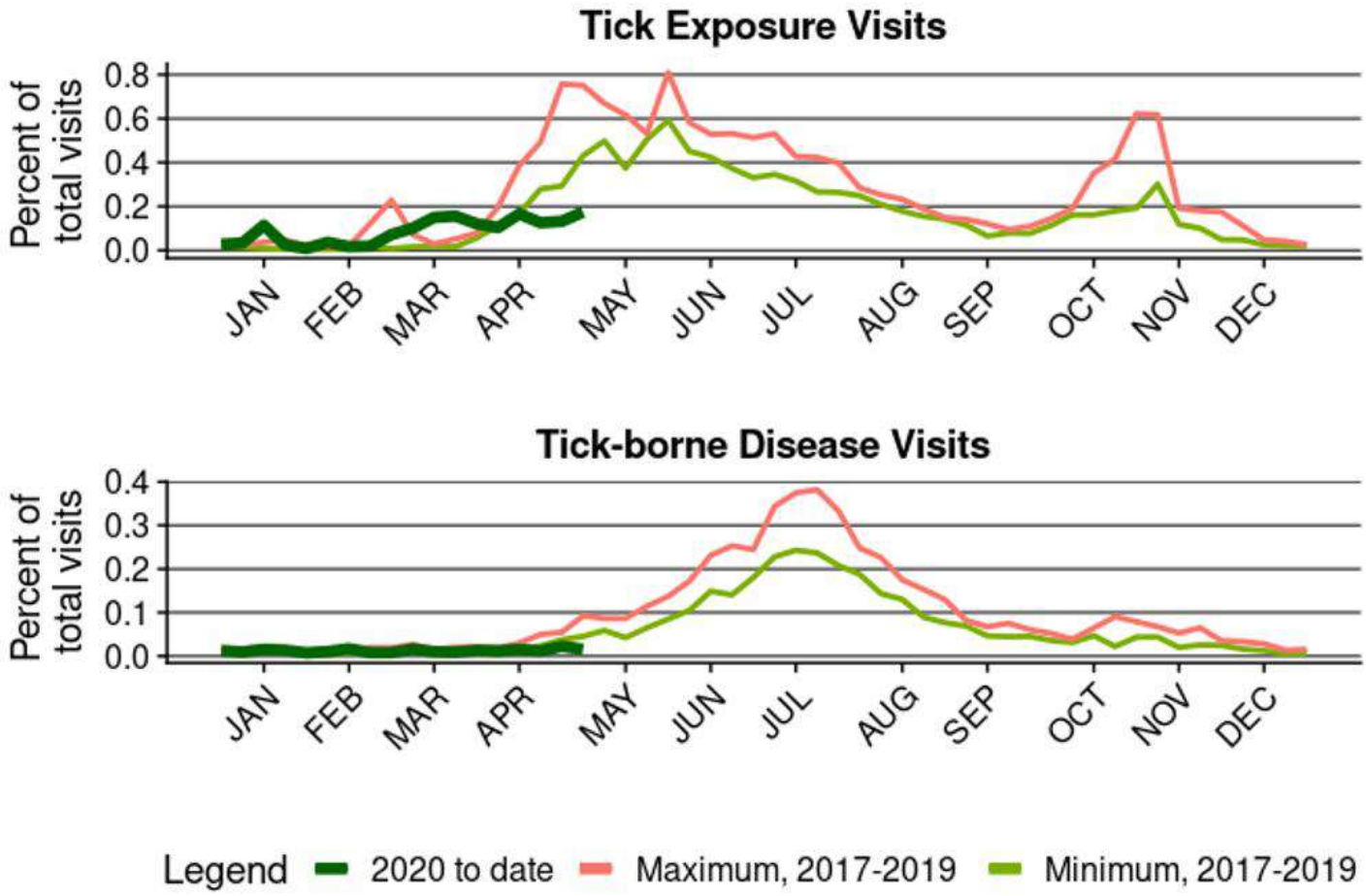
Arbovirus: Arthropod-borne virus, a virus transmitted by insects (like mosquitoes) or other arthropods (like ticks).

Blood Meal: Blood taken from a host by a female mosquito that enables that female to produce and lay viable eggs

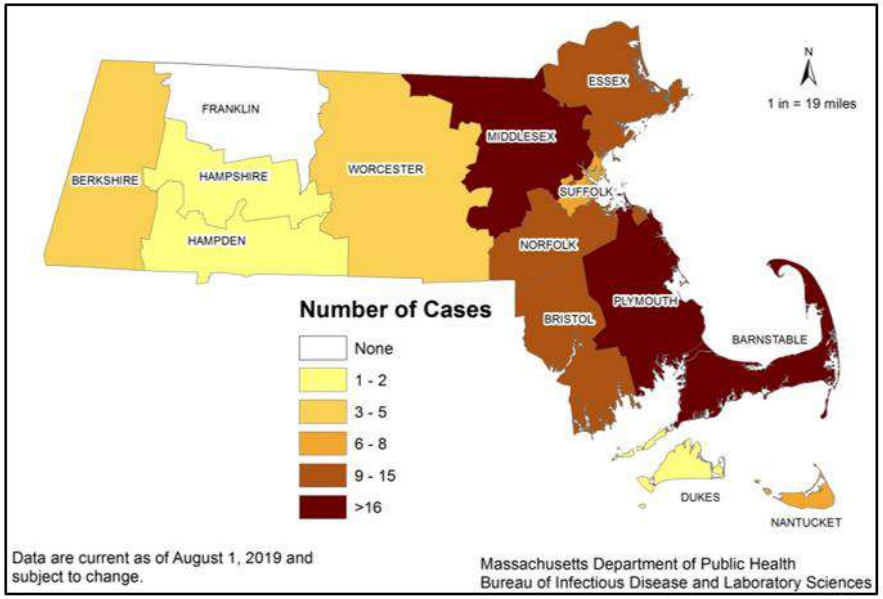
Bridge vector: Species of mosquito that feed on infected birds and subsequently transmits the virus to humans or other dead end mammalian hosts., i.e. *Coquillettidia perturbans*, a species that bites both birds and mammals and can therefore carry EEEv from birds to horses, humans, and other animals

Calibration: The checking and setting of equipment to ensure it delivers pesticide in the correct amount, at the correct location, etc. Done for aircraft that apply pesticides as well as for

Tick-borne Disease



Borrelia miyamotoi



County	2018 Cases Confirmed and Probable	Frequency (%)
Barnstable	3	5%
Berkshire	1	2%
Bristol	9	15%
Dukes	0	0%
Essex	2	3%
Franklin	0	0%
Hampden	1	2%
Hampshire	1	2%
Middlesex	17	28%
Nantucket	0	0%
Norfolk	8	13%
Plymouth	9	15%
Suffolk	6	10%
Worcester	3	5%
State Total	**60**	**100%**

Table 1: *B. miyamotoi* case counts and proportions by county of residence, Massachusetts, 2018.

Data as of August 1, 2019 and are subject to change.

Borrelia miyamotoi 2

Figure 2.
Number of confirmed and probable cases of *B. miyamotoi* by age group, Massachusetts, 2014-2018

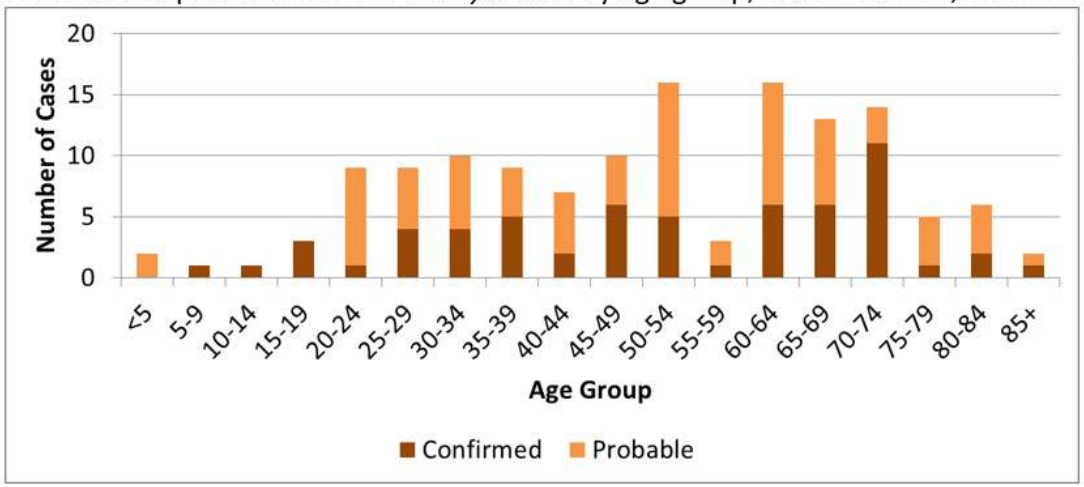
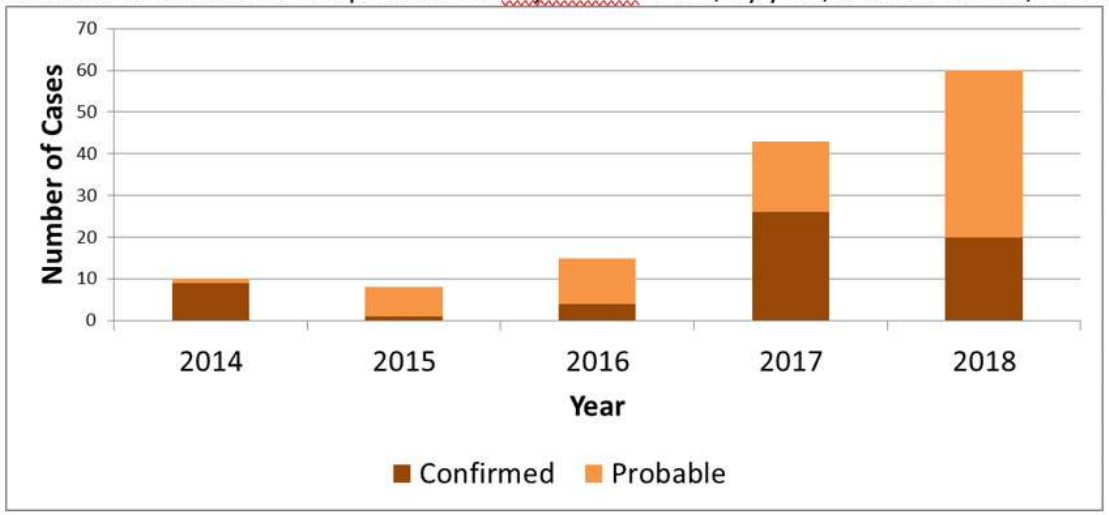
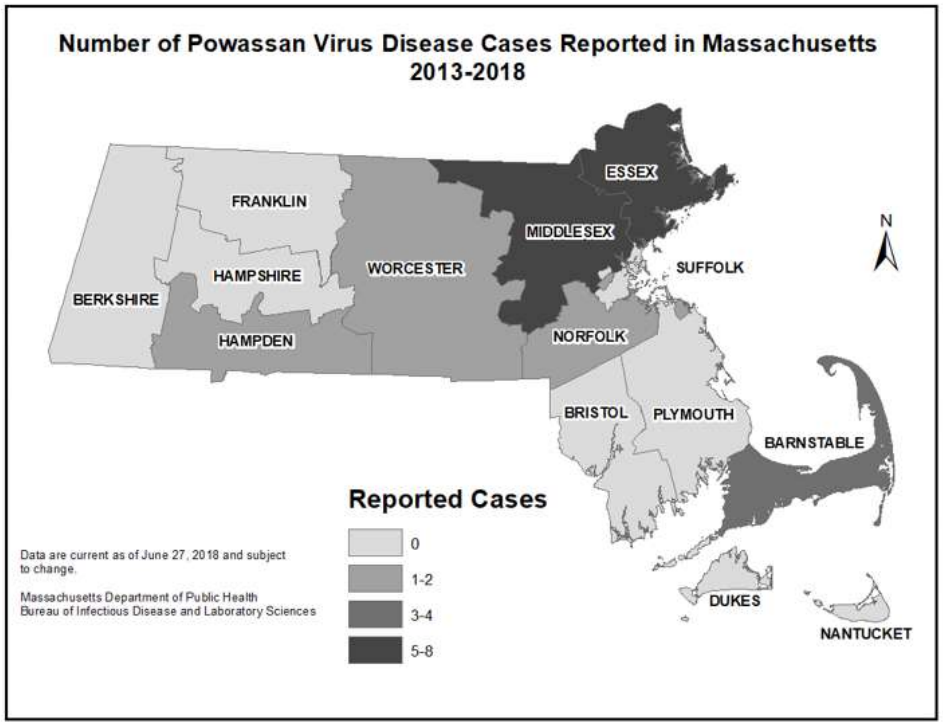


Figure 3. Number of confirmed and probable *B. miyamotoi* cases, by year, Massachusetts, 2014-2018



Powassan virus



County	Confirmed Cases (2013-2018)
Middlesex	8
Essex	7
Barnstable	4
Hampden	2
Norfolk	1
Worcester	1
Berkshire	0
Hampshire	0
Franklin	0
Suffolk	0
Bristol	0
Plymouth	0
Dukes	0
Nantucket	0

Map 1 and Table 1: Number of Powassan virus disease cases in Massachusetts residents reported between 2013 and 2018 by county of residence.

Data as of May 16, 2019 and are subject to change.

Powassan virus 2

Figure 2: Number of Powassan virus disease cases reported by year, Massachusetts 2013-2018.

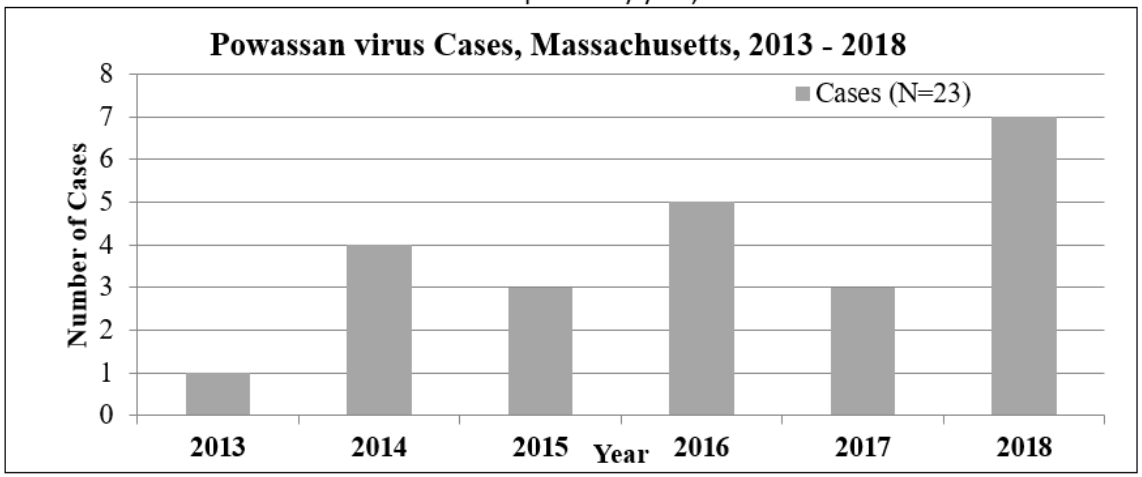


Figure 3: Number of Powassan virus disease cases by month of diagnosis, Massachusetts 2013-2018

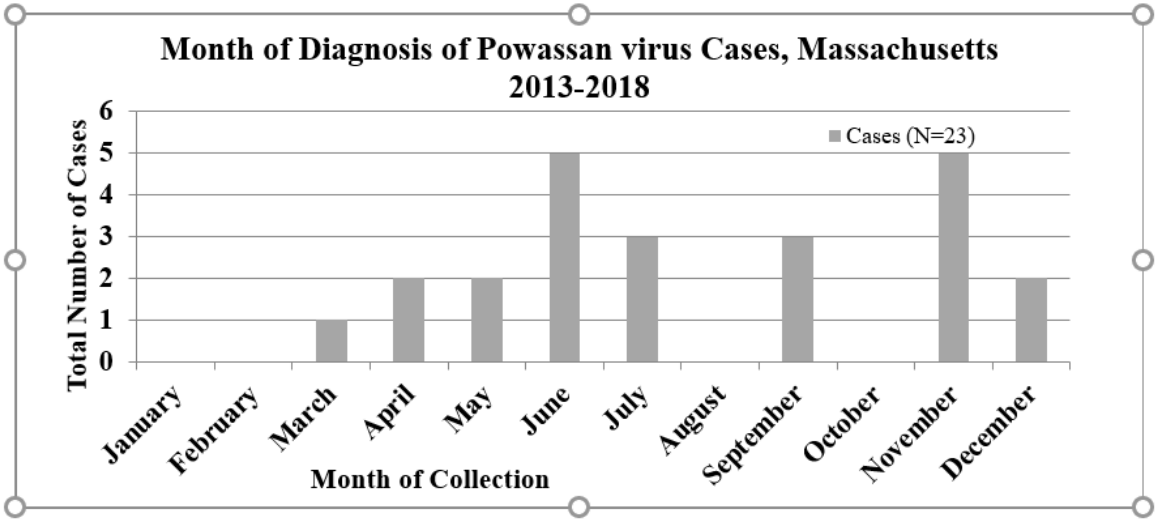
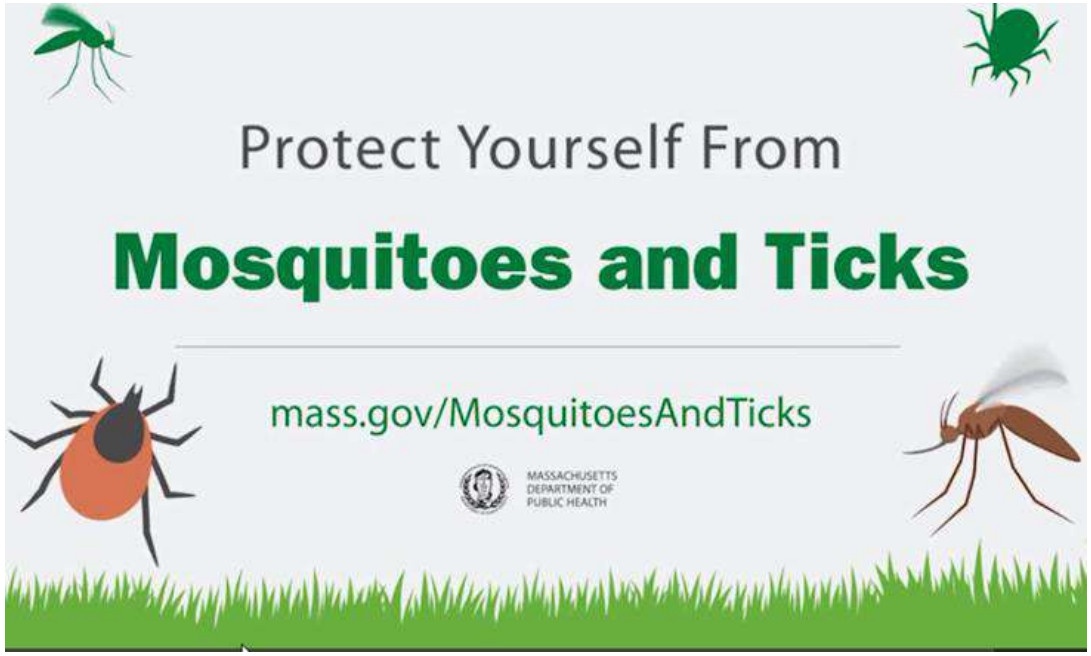


Table 2: Frequency of symptoms reported among Powassan virus disease cases, Massachusetts 2013-2018

Questions and Discussion

Thank you!



www.mass.gov/dph/mosquito

DPH Contact: Catherine.brown@state.ma.us