



MONDAYS WITH DR MARK & DR MICHAEL

Monday, July 10, 2023 | 1:00 – 1:30PM

TOPIC #7

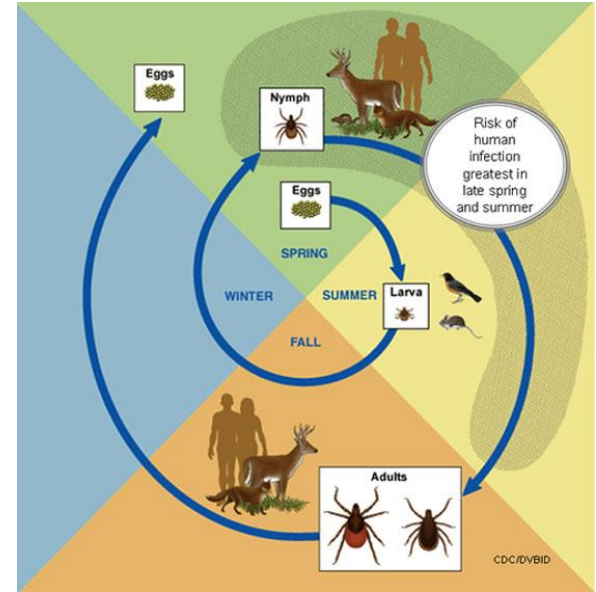
Biting Back: Unmasking Vector-Borne Threats in the Northeast USA



Lyme Disease

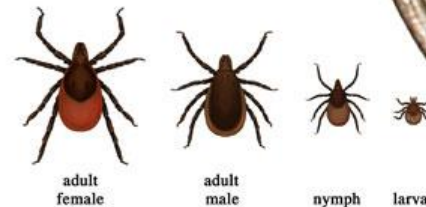


Centers for Disease Control and Prevention, <http://phil.cdc.gov/phil/>



- Early ((3 to 30 Days After Tick Bite):
 - Fever, chills, headache, fatigue, muscle and joint aches, and swollen lymph nodes may occur in the absence of rash
 - Erythema migrans (EM) rash occurs in approximately 70 to 80 percent of infected persons (rash can vary in size and appearance)
- Later Signs and Symptoms (days to months after tick bite):
 - Severe headaches and neck stiffness
 - Additional EM rashes on other areas of the body
 - Facial palsy (loss of muscle tone or droop on one or both sides of the face)
 - Arthritis with severe joint pain and swelling, particularly the knees and other large joints.
 - Intermittent pain in tendons, muscles, joints, and bones
 - Heart palpitations or an irregular heart beat (Lyme carditis)
 - Episodes of dizziness or shortness of breath
 - Inflammation of the brain and spinal cord
 - Nerve pain
 - Shooting pains, numbness, or tingling in the hands or feet
- Diagnosis - two-step testing process for Lyme disease.
- Treatment:
 - Antibiotics Doxycycline, Amoxicillin or Cefuroxime
 - Treatment varies based organs involved – skin, neurological, joints or heart

Blacklegged Tick (*Ixodes scapularis*)



Babesiosis

- Babesiosis is a disease caused by parasites that infect red blood cells
- Most U.S. cases are caused by *B. microti*, which is transmitted mainly by *Ixodes scapularis* ticks, primarily in the Northeast and Upper Midwest. Babesia parasites can also be transmitted via blood transfusion, perinatally, and via organ transplantation
- Incubation Period 1-4 weeks following tick bite; 1-9 weeks after contaminated blood transfusion (up to 24 weeks)
- Symptoms:
 - Fever, chills, sweats, Malaise, fatigue, Myalgia, arthralgia, headache, Gastrointestinal symptoms, such as anorexia and nausea (less common: abdominal pain, vomiting)
Dark urine
 - Less common: dry cough, sore throat, photophobia, conjunctival injection, Mild splenomegaly, mild hepatomegaly, or jaundice may occur in some patients
 - Severe cases can be associated with marked thrombocytopenia, disseminated intravascular coagulation, hemodynamic instability, acute respiratory distress, renal failure, hepatic compromise, altered mental status, and death.
- Diagnosis
 - Microscopic examination of a peripheral blood smear; or
 - Positive Babesia (or *B. microti*) polymerase chain reaction (PCR) analysis; or
 - Demonstration of a Babesia-specific antibody titer
- Treatment:
 - Azithromycin + Atovaquone, or Clindamycin + Quinine



Anaplasmosis

- Anaplasmosis is a disease caused by a bacterium (*Anaplasma phagocytophilum*) spread to people by tick bites primarily from the blacklegged tick
- Symptoms:
 - Early signs and symptoms (days 1-5) are usually mild or moderate and may include: Fever, chills, Severe headache, Muscle aches, Nausea, vomiting, diarrhea, loss of appetite
 - Late severe illness can occur if treatment delayed or comorbid conditions. Can cause Respiratory failure, Bleeding problems, Organ failure and Death
- Diagnosis – blood test which may take weeks
- Treat with doxycycline



Ehrlichiosis

- Ehrlichiosis - diseases caused by bacteria
- Transmitted to people primarily through the bite of infected ticks (lone star tick and blacklegged tick)

Symptoms:

- Fever, chills, headache, muscle aches, and sometimes upset stomach.

Treatment:

- Doxycycline is the treatment of choice for adults and children of all ages with ehrlichiosis.

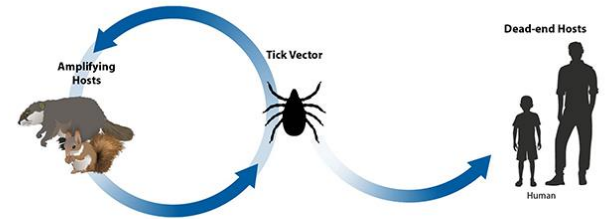


Powassan virus

- Powassan virus is spread to people by the bite of an infected tick.
- Although still rare, the number of reported cases of people sick from Powassan virus has increased in recent years.
- Most cases in the United States occur in the northeast and Great Lakes regions from late spring through mid-fall when ticks are most active.
- There are no vaccines to prevent or medicines to treat Powassan virus disease.
- Initial symptoms can include fever, headache, vomiting, and weakness.
- Powassan virus can cause severe disease, including infection of the brain (encephalitis) or the membranes around the brain and spinal cord (meningitis).
- Diagnosis: Laboratory testing of blood or spinal fluid
- Exclude other similar diseases

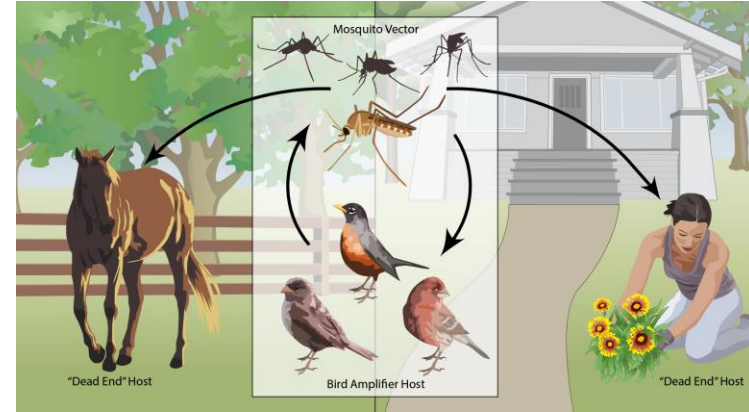


Powassan Virus Transmission

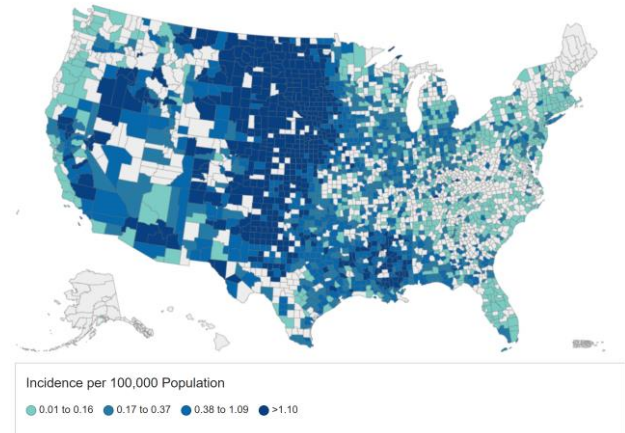


West Nile Virus

- Generally transmitted by an infected mosquito
- **Symptoms:**
 - 80% have no symptoms
 - 20% develop a fever with other symptoms such as headache, body aches, joint pains, vomiting, diarrhea, or rash.
 - Most people with febrile illness due to West Nile virus recover completely, but fatigue and weakness can last for weeks or months.
 - Serious symptoms in a few people. About 1 in 150 people who are infected develop a severe illness affecting the central nervous system (encephalitis or meningitis).
 - Symptoms of severe illness include high fever, headache, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, vision loss, numbness and paralysis.
 - Severe illness can occur in people of any age; however, greater risk if >60 or comorbid condition e.g., cancer, diabetes, hypertension, kidney disease, and people who have received organ transplants.
 - Recovery from severe illness might take several weeks or months. Some effects to the central nervous system might be permanent.
 - About 1 out of 10 people who develop severe illness affecting the central nervous system die.
- **Diagnosis:** Laboratory testing of blood or spinal fluid
- **Treatment:**
 - No specific treatment or vaccine
 - Supportive treatment



West Nile virus human neuroinvasive disease average annual incidence per 100,000 population by county of residence, 1999-2022*



Questions

Upcoming NEBGH virtual events

- **July 11** – Let's Get Clear on Employer Fiduciary Responsibilities
- **July 24** – Mondays with Dr. Mark
- **July 26** – Colon Cancer and Your Workforce: What You Need to Know Now
- **September 21** – Pharmacy Benefits 2023