Lyme Disease in Fairfield County, Connecticut: The Need to Know

Jack Chen
The University of Vermont

Follow this and additional works at: https://scholarworks.uvm.edu/fmclerk

Part of the Medical Education Commons, and the Primary Care Commons

Recommended Citation
https://scholarworks.uvm.edu/fmclerk/488

This Book is brought to you for free and open access by the Larner College of Medicine at ScholarWorks @ UVM. It has been accepted for inclusion in Family Medicine Clerkship Student Projects by an authorized administrator of ScholarWorks @ UVM. For more information, please contact donna.omalley@uvm.edu.
LYME DISEASE IN FAIRFIELD COUNTY, CONNECTICUT: THE NEED TO KNOW

Jack Chen, MSIII
Family Medicine Clerkship May - June 2019
Brookfield Family Medicine | Brookfield, CT
Mentors: Dr. Cornelius Ferreira
Larner College of Medicine at University of Vermont
PROBLEM IDENTIFICATION AND NEED

• Lyme Disease Problem
  • Lyme disease is a multisystem disease caused by spirochete *Borrelia burgdorferi*
  • *Borrelia burgdorferi* transmitted through bite of Blacklegged Ticks (aka *Ixodes scapularis* predominant in US, esp. CT)
  • Exposure spring to early fall when vector present
  • Most cases reported in northeastern, mid-Atlantic and north central regions
  • Multisystemic disease preventable if recognized early and treated with antibiotics

• Need to educate patients
  • Based on interviews
    • spring to fall → many patient’s visit pertain to tick and Lyme disease
    • Patient’s lack of knowledge regarding Lyme disease (what to do before and after tick bite)
  • CDC
    • Steady rise in prevalence from 12,801 confirmed cases in 1997 to 29,513 confirmed cases in 2017
  • CT DPH
    • Most number of cases of Lyme Disease in Connecticut is in Fairfield County
      • About 1/5 of the cases reported
PUBLIC HEALTH COST & UNIQUE COST CONSIDERATIONS

• Steady rise in number of cases reported in past 25 years
  • Little less than 10,000 cases reported in 1991 to 40,000 cases in 2017

• Lyme disease is expanding into more states

• Estimated over 300,000 people are diagnosed and treated each year in US
  • 7th most common reportable infectious disease in US

• Lyme disease is associated with $2,968 higher total health care costs and 87% more outpatient visits over a 12-month period

• Total cost of Lyme disease testing alone is estimated at $492 million.

• Total medical cost attributable to Lyme disease can be as much as $1.3 billion a year

• Education especially awareness and prevention is crucial to decrease number of cases each year and keep the cost down

COMMUNITY PERSPECTIVE

• Brianna Stelzel, MA Brookfield Family Medicine
  • Does not think that patients are educated about ticks and Lyme disease
  • Patient will most definitely benefit from being more educated about ticks and Lyme disease from their provider

• Donna Cople, LPN Brookfield Family Medicine
  • “Highest amount of tick-related visit I have seen is 6 in one day from one provider”
  • Believes that patients are aware of ticks and Lyme disease because of the media and public information. However, the awareness makes the patients come in demanding medication and testing

• Scott Williamson, MA Brookfield Family Medicine
  • At high of the season, 2-6 tick-related visits a day
  • Season last from April to November depending on the weather
  • Some patients are aware of ticks and Lyme disease. Some patients may even be informed but following through to protect themselves from ticks is another story.
  • Continue to further educate the patients will definitely be helpful and effective because the patient that are aware of ticks and Lyme disease (via TV and news) would call the office immediately asking for antibiotics/vaccines/testing and worry about outbreaks.

• Werhner Rojas, LPN Brookfield Family Medicine
  • “One of the provider in the office have handouts to give to patients and really sit down and spend the time to educate the patient”
  • “As one of the triage nurses, the provider’s efforts made a difference. I feel there is a slight decrease in the number of tick related visits”
INTERVENTION AND METHODOLOGY

• Create handout with essential information regarding ticks and Lyme disease
  • general information, prevention, how to remove and kill a tick, monitor signs and symptoms and when to seek a healthcare professional
• Distribute handout to every patient that comes to the office
• Have the handout at the receptionist desk
• Have the handout posted on the bulletin board in the waiting room and the Doctor’s office
• The goal is provide the basic knowledge to:
  • Have healthier patient population – without ticks & Lyme disease
  • Decrease number of tick bite related office visits at Brookfield Family Medicine
  • Reduce medical cost relating to Lyme disease (office visit, ER visits, Lyme disease testing, medications)
  • Decrease the incidence of Lyme disease in Fairfield County
RESULTS/RESPONSE

- Handout with essential basic information is to be distributed as stated in “Intervention and Methodology” section

- Handout contains general information, prevention, how to remove and kill a tick, monitor signs and symptoms and when to seek a healthcare professional

---

**Things You Need to Know About Ticks and Lyme Disease to Keep Your Family Safe**

**General Information**
- Lyme disease is a systemic disease.
- Caused by bacterium Borrelia burgdorferi, which is transmitted through bite of the vector Blacklegged Deer Tick (also known as the lone star tick, which is prevalent in IL, exp. CT).
- Most exposed going to such full body tick vector is most prevalent.
- Ticks must be attached for a day or more to reseed bacteria in blood.
- Many people who get Lyme disease never know they were bitten by a tick.
- Most people bitten by ticks do not get Lyme disease.
- Most cases reported in this region, not Atlantic and not coastal regions.
- Mult ALWAYS diseases prevalent if recognized early and treated with antibiotics.

**Prevention**
- Know what to expect ticks.
- Ticks live in grassy, wooded and brambly areas.
- Use long-sleeved shirts, including pet-like shirts.
- Try to avoid ticks by walking on mowed trails.
- Wear clothing and gray with 90% protection.
- Use insect repellent containing DEET, picaridin, IR3535, or oil of lemon eucalyptus (OLE).
- Pre-erecting LAR (PAR) or 3-Methylphenyl is required for defense.
- Remove possible ticks at least twice a year or more for larger reptiles.
- Children under 3 years old should not eat as a nutrient (LE or PNC).

**Check (Frequency for Tick Ticks)**
- Full-body check before going outside.
- Check clothing, pets' area, tick before going inside.
- Sleeve visible 2 mm of going inside.

**How to Remove and Kill a Tick**
1. Using a clean quiet source, grab the tick near its base. Untie it gently.
2. Pull the tick upward with steady and even pressure. Do not twist as you pull.
3. Once the tick is removed, thoroughly clean the bite area and your hands with soap and water or rubbing alcohol.
4. Put nothing inside in the tick to kill it. Be sure to kill the tick in a sealed bag.
5. Store the tick for identification if needed at the appropriate.

**Minimize and Recognize** (even without finding a tick)
- *Course of illness without treatment*:
  - Stage 1: Early Localized. Infections are not spread throughout body.
    - Begins 3 days to weeks, after infection.
    - Ticks are present (e.g., engorged, dead), heart, brain, abdomen, muscle pain, meningitis, and skin infections.
  - Stage 2: Early Disseminated. Bacteria begins to spread throughout the body.
    - Nervous tissue, signs of facial weakness, fever
  - Stage 3: Later Disseminated. Bacteria spread throughout the body.
    - Identify signs after infection.
    - Neurologic disorders (e.g., sensory loss, delirium, confusion, encephalitis, paralysis, facial weakness, deep sleep), or visual problems.

When to see a healthcare professional
- For tick bite, see a healthcare provider if exposed.
- For symptoms and signs consistent with Lyme disease even without early stage tick bite.

---

This handout was created using CDC’s “Tick” posters. For more information, visit CDC’s Lyme Disease page: [https://www.cdc.gov/lyme/](https://www.cdc.gov/lyme/)
EVALUATION OF EFFECTIVENESS & LIMITATIONS

- Keep track of the number of tick related visits at Brookfield Family Medicine to see if there is a decrease
  - Since Lyme disease is seasonal (most prevalence from spring to early fall), it would make more sense to compare overall number of tick related visits one year to the next
  - Compare the same months across number of years
    - E.g. based on CDC historical data, the top four months of Lyme disease cases reported are May to August

- Patient fill out a survey at the end of the office visit after reading the handout
  - Rating the effectiveness of the handout
  - Evaluating how much the patient knew about ticks and Lyme disease before reading the handout

- Provide a pretest and posttest questionnaire to assess understanding of the handout and address any misunderstanding

- Patients can self-report or doctor can ask the patient about the effectiveness of the handout and discuss

- Limitations
  - Difficult to track every tick related visit at the office
  - Handout only given to Brookfield Family Medicine patients
  - Time consuming to assess patient's understanding of the handouts
  - Difficult to assess reliably the handout's impact

https://www.cdc.gov/lyme/stats/graphs.html
RECOMMENDATIONS FOR FUTURE INTERVENTIONS/PROJECTS

• Distribute handout to:
  • Hospitals
  • Other doctor’s offices (all specialties)
  • Schools
  • Daycares
  • Parks
  • Camp sites

• Spend some time during annual physicals to educate on the dangers of ticks and Lyme disease

• Go to schools and town hall meetings to further educate the public

• Encourage other doctor’s offices to educate their patients

• Handouts containing other tick-borne illness focusing on general information, prevention, how to remove and kill a tick, monitor signs and symptoms and when to seek a healthcare professional


Thank you for agreeing to be interviewed. This project is a requirement for the Family Medicine clerkship. It will be stored on the Dana Library ScholarWorks website. Your name will be attached to your interview and you may be cited directly or indirectly in subsequent unpublished or published work. The interviewer affirms that he/she has explained the nature and purpose of this project. The interviewee affirms that he/she has consented to this interview.

Consented __X__
Name: Scott Williamson
Name: Brianna Stelzel
Name: Donna Cople
Name: Werhner Rojas

Did NOT Consent____
Name: ______________________________________________________________
Name: ______________________________________________________________