Preventing Tick-Borne Illness in Seniors

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July-August 2025

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Problem Identification & Need

- Older adults in New Milford, CT face elevated tick exposure from gardening, walking, and pet care.
- Surveillance shows a bimodal pattern: highest reported incidence in young children and in older adults (older-adult ages 75-79 among the top reported incidence groups)[1].
- Older adults may have delayed symptom recognition and higher risk of complications from tick-borne infection.
- Studies show permethrin-treated socks and shoes can reduce tick attachment by up to 74×, making them a proven protective strategy[2].
- AHEC focus areas: Current & Emerging Health Issues; Connecting Communities & Supporting Health Professionals/Community Health Workers

Public Health Cost

- U.S. economic burden: diagnosed Lyme disease costs range from $345–$968 million/year; overall burden (medical + nonmedical + lost productivity) may approach ~$1 billion/year.[3]
- Patient & societal costs: average out-of-pocket cost ≈ $1,200 per illness; average total societal cost ≈ $2,000 per patient.[3]
- U.S. case counts (2023): CDC reported >89,000 cases; estimated diagnosed/treated cases ~476,000/year.[4]
- Connecticut (2023): CDC reported 3,239 Lyme disease cases in Connecticut in 2023.[4]

Community Perspective

Deborah Rose

Program Coordinator, New Milford Senior Center

“Several community members in the senior center have been bitten by a tick and had to be treated by antibiotics. I personally have also had ticks on me, once during a pregnancy, and took medicine.”

Olivia Vesey

Medical Assistant, New Milford Primary Care

"Ticks are a huge problem in our area, perhaps maybe even beyond our capacity and comprehension. Every day at the primary care office, we receive calls, messages, and treat patients for this specific reason."

Intervention and Methodology

- Presentation at Senior Center: Covered key tick-prevention tips: wear long pants tucked into socks, use EPA-approved repellents on skin (DEET/picaridin), do full-body checks after outdoor activity, and yard changes (remove leaf litter, mow).
- Live permethrin treatment demo: Demonstrated safe permethrin treatment of socks (0.5% ready-to-use)
- Distributed permethrin pre-treated socks
- Printed handout: "Tick-Bite Prevention"
- Data collection: Immediate post-session quiz, counts of socks distributed, and attendance log.
- Budget: Estimated ~$15 for 20 pairs of socks + one bottle of permethrin spray

Intervention: Handout

Source: Pennsylvania Department of Health, *T.I.C.K. Prevention* handout[5].

Tick Bite Prevention
T.I.C.K.

Treat clothes and shoes with permethrin
Apply permethrin insecticide to clothes, shoes, gear before engaging in outdoor activities.

Insect repellent
Apply an EPA approved insect repellent to your skin and over your clothes before engaging in outdoor activities.

Check for ticks
Check for ticks regularly while you are outside and conduct a thorough tick check when you come inside. Shower shortly after coming inside and place clothes in the dryer.

Keep watch for signs and symptoms of tickborne illnesses
Watch for the signs and symptoms described for each disease, especially in the summer when ticks are most active. Seek medical care if you develop symptoms related to tickborne diseases.

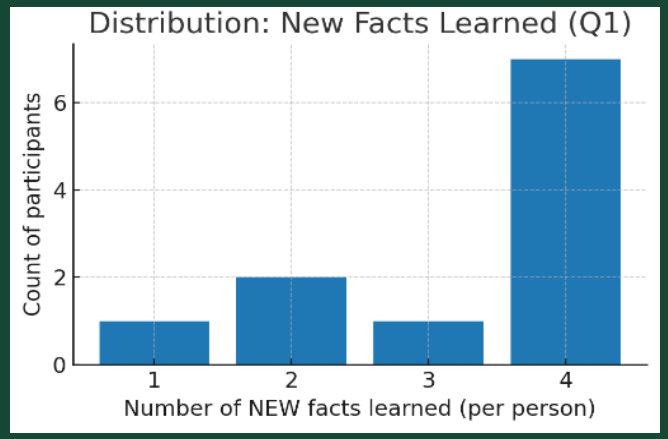
pennsylvania DEPARTMENT OF HEALTH

Results/Response Data

Pre-treated socks distributed: 20 pairs
- Attendance: 11
- Post-quiz returned: 11 / 11 (100%)

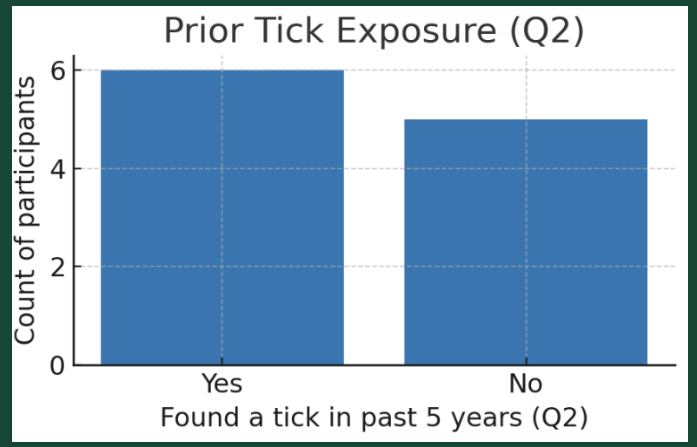
Post-Session Quiz:
- Which of the following was NEW to you today? (Permethrin = clothing only; Drying = fully dry before wearing (≥2 hrs); Pets = keep pets away while wet; Wash life ≈ 4–6 washes)
- In the PAST 5 YEARS — have you found a tick on yourself? / been diagnosed with a tick illness?
- In the NEXT MONTH — do you plan to adopt any of these? (tick check, repellent, treated socks, yard change)
- How confident are you to treat a sock yourself? (Very / Somewhat / Not)
- What might stop you from doing these actions? (pets, smell, physical difficulty, cost, not interested)

Results/Response Data



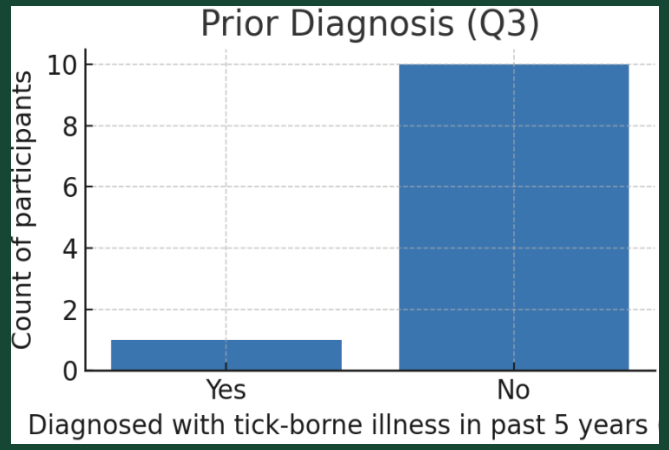
Q1: New Facts Learned

- **Mean new facts learned = 3.27**
- **% who learned ≥1 new fact = 11/11 (100%).**



Q2: Prior Tick Exposure

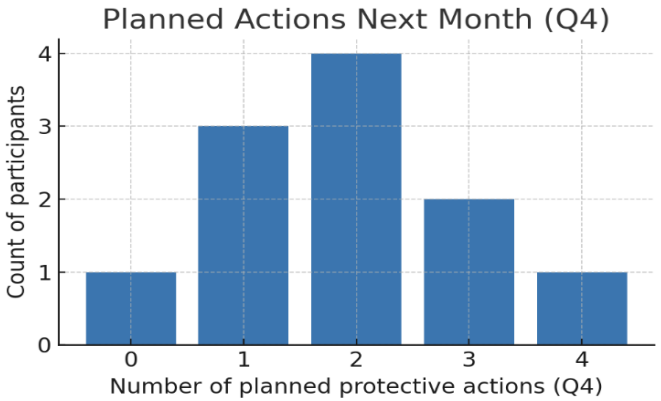
- **Found a tick attached in past 5 years: 6/11 (54.5%).**



Q3: Prior Diagnosis

- **Diagnosed with tick-borne illness in past 5 years: 1/11 (9.1%).**

Results/Response Data

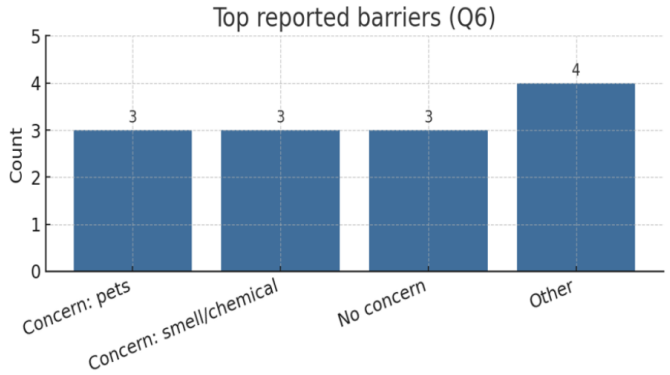


Q3: Planned Actions

- % planning ≥1 protective action in the next month: 10/11 (90.9%).
- Mean number of planned actions = 1.91

Q5: Self-confidence to Treat Sock

- "Very confident" to treat a sock = 10/11 (90.9%).



Q6: Top Reported Barriers

- Most common concerns involve pets or smell/chemical
- No concern: 3
- Other: 4 mentions (has boots, laziness, not interested, no answer).

Evaluation of effectiveness/Limitations of intervention

Evaluation of Effectiveness

- 11 seniors attended; all 20 pre-treated socks were distributed.
- 100% reported learning at least one new fact about tick prevention.
- 91% planned to adopt ≥1 protective action.
- Evidence shows permethrin-treated clothing significantly reduces tick attachment; if used consistently, the intervention can be highly effective at preventing bites.

Limitations

- Reliance on self-report, participants may overestimate behavior change.
- No data on long-term outcomes.
- Selection bias: Small sample (n=11), limited to senior-center attendees.

Recommendations for Future interventions/projects

- **Volunteer sock treatment service: reduces barriers (pet/chemical worries, physical difficulty) by offering treated socks without requiring participants to spray.**
- **Follow-up survey: Survey to measure short-term behavior adoption and identify early obstacles.**
- **Annual cohort follow-up: track self-reported tick encounters and diagnoses among treated-sock users to monitor longer-term impact.**

References

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