

Developing and implementing a tick safety and Lyme awareness program for Pennsylvania schools

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The Pennsylvania Department of Health and partners developed a tickborne disease education program for elementary aged children. The program provided fourth and fifth graders age-appropriate information and activities to learn about tick safety and Lyme disease prevention practices.



A game of Tick Tag.

The “What”

Lyme disease is one of the most frequently reported infectious diseases in Pennsylvania. *Ixodes scapularis* or deer ticks, the ticks that carry and transmit Lyme disease, are found in all counties in Pennsylvania. Children under the age of 14 have a particularly high incidence of Lyme disease. This age group may have higher exposures to deer ticks through playing outside frequently, may cuddle with pets, may not take as much care when approaching tick risky areas, and may not check for ticks regularly. Public health often focuses on educating adults on tick safety and Lyme disease. However, age-appropriate education to this age group could be helpful in reducing the incidence of Lyme disease and other tickborne pathogens.

Since this is an age group that may not have access to the internet and may not attend events where the Pennsylvania Department of Health (PA DOH) and partners provide tick and Lyme education, there has not been much education provided to this age group. PA DOH decided that providing science-based education that was age appropriate to schools would be the best way to reach children. The PA DOH Tickborne Disease Coordinator (TDC) and Public Health Educator (PHE), who are funded through the Epidemiology and Laboratory Capacity for the Prevention and Control of Emerging Infectious Diseases (ELC) cooperative agreement, developed a program for students in the fourth grade. The program incorporated educational slides, demonstrations, a question-and-answer session, and concluded with a game developed by the PHE called Tick Tag.



The “So What”

Schools were selected based on Lyme disease incidence, school size, and a requirement that fourth and fifth grades were in the same building. Only schools where fourth and fifth grades were in the same building with the same student population were selected due to planned fall 2023 follow up evaluations. Six school districts in four regions of Pennsylvania received the education with nearly 1,000 students attending.

The educational slides provided descriptions of ticks, where ticks can be found, ways to stay safe from ticks, signs and symptoms of Lyme disease that they should watch for, and how Lyme disease is treated. The program was presented in an interactive manner, where the TDC asked the children to respond to questions and prompts throughout the presentation. The TDC and PHE demonstrated how to apply insect repellent, permethrin and how to conduct tick checks. The children had time to ask questions and, frequently, to share personal stories of tick bites and/or relatives who had Lyme disease.

The PHE led the children in a game of Tick Tag. Half of the students were “ticks” and were provided with tick stickers. They were instructed to stand behind a two parallel lines of cones. The other children were walkers who had to walk between the ticks. In the first round, the walkers were ill prepared to be outdoors among ticks and had no protection. They had to walk a narrow walkway between the ticks with their eyes

closed while the “ticks” had to tag the walkers with their tick stickers. In the second round, the walkers “applied” insect repellent. This time, the “ticks” were spaced farther apart and had their eyes closed. In the third round, the walkers “applied” repellent and permethrin. The “ticks” stood even farther apart and continued to close their eyes. At the end, a child was chosen for a “tick check” where the children had to count the tick stickers on the child. This was intended to reinforce the lessons in a fun way to help the children remember tick safety lessons.

The children were provided with “goodie bags” to take home. The bags included pencils and silicone bracelets with tick safety reminders, tick tattoos, letters to the adults in the home explaining the program, and pamphlets and other educational materials for the children to share with family members.

The program was developed in collaboration with the Pennsylvania Department of Education who were able to include the educational metrics met by teaching this program.

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The “Now What”

Knowledge and behavior evaluations were conducted prior to the program. Post program knowledge evaluations were also conducted. In Fall 2023, the same children will be asked to conduct knowledge evaluations and post behavior evaluations to determine if they were more likely to use tick safety strategies over the summer. At this time, data still need to be entered and analyzed to

gauge the effectiveness of the program. PA DOH plans to disseminate the results through presentations at national conferences, reports, and other methods.

PA DOH plans to use the data collected to refine the program for 2024. In late winter/early spring, PA DOH plans to hold regional Train-the-Trainer sessions to provide training to local educators on how to administer the tick and Lyme safety programs in their own schools

Key contributors to this project include Kathleen Lynch, Pennsylvania Department of Health.