Abstract: Bats in congregate living settings: The potential for post-exposure prophylaxis

Background: Rabies is almost always fatal unless adequate and appropriate post-exposure prophylaxis recommendations can be made. There are many obstacles in making an accurate evaluation of an exposure risk such as; exposure by highly mobile hosts (such as bats), exposures to a large quantity of people in a short time frame (such as congregate living settings), and failure to capture and test suspected rabid animals. These obstacles make it difficult to understand the extent of the exposures. While 2-4% of all bats tested, test positive in Maine (from 2013-2017), that percentage is suggestive of only the bats that are submitted for testing. The number of consultations handled by Maine CDC involving bats in that time frame was approximately 1050. Congregate living settings such as youth summer camps pose problems as the population is characterized as vulnerable and varied. Camp counselors often will exclude a bat from the cabin instead of capturing and submitting it for testing per recommended guidelines. This poses difficulties since large groups of children are put at risk for rabies due to these exposures in which rabies is unable to be ruled out. Without testing of the animal to rule out rabies, epidemiologists at Maine CDC encounter significant challenges while making recommendations for rabies post-exposure prophylaxis in these scenarios.

Objective: To identify the past burden of the rabies testing of bats in Maine from 2013-2017 and highlight the challenges associated with accurately evaluating and recommending rabies post-exposure prophylaxis in relation to congregate living settings such at youth summer camps.

Methods: A literature review of Maine reports of bats in congregate settings and recommendations for rabies post exposure prophylaxis received between 2013 and September 2017 was performed. Maine Health and Environmental Testing Laboratory (HETL) reports of rabies testing in bats from 2013-2017 provided the statistics on how many bats were tested each year as well as, how many tested positive, negative, were untestable. Epidemiologists received data from HETL regarding yearly statistics on bat testing results. Documents were obtained through searching an internal shared drive folder which contains updated rabies information and recommendations guidelines, and information was gathered through hard copies of standardized documents such as the 2017 Maine Rabies Management Guidelines (4^{th} edition), and National Association of State Public Health Veterinarians Compendium of Animal Rabies Prevention and Control 2016. Consultations and past investigations of rabid bats by Maine CDC epidemiologists were reviewed using the Maine CDC Infectious Disease Program's Consultation Database and its National Electronic Disease Surveillance System (NEDSS) Base System (NBS).

Results: Of the 1050 consults regarding bats and rabies, 853 bats were sent in for testing between 2013-2017 to date meaning that 20% of all bat rabies consults go untested. Of all bats tested (853) between 2013-2017, 35 tested positive (for 4% positivity rate). Between 2013-2017 the number of Maine CDC rabies consults related to bats from youth summer camps was 3, and the number of bats submitted for testing from youth summer camps were 0. However, greater than 100 children were recommended post-exposure prophylaxis due to potential exposure in these situations.

Conclusions: Congregate living settings such as youth summer camps are a challenge when attempting to evaluate and make recommendations for rabies post-exposure prophylaxis especially when children are exposed to highly mobile hosts such as bats. The challenge of not having the bat available for testing is one of the largest obstacles in being able to provide accurate post-exposure prophylaxis recommendations. While youth summer camps have sought consultation about bat exposures 3 times between 2013-2017, no bats were sent in for testing making it difficult to evaluate potential exposure. As the population attending these camps is vulnerable and varied, training and information should be provided to counselors on capturing and submitting bats that expose kids. This would reduce the challenges faced by epidemiologists responding to these events.

Authors: Donna Guppy, BSN, RN, BSed, Field Epidemiologist II, Maine CDC and Rachel Keefe, BA, MSc, MPH, Field Epidemiologist, Maine CDC