

**Investigation of Potential Rabies Exposure while Attending a Camp,
Barton County, June 2010**



Background

On June 20, 2010, the Kansas Department of Health and Environment Bureau of Surveillance and Epidemiology (KDHE-BSE) was notified of a potential exposure to bats among people who were attending a camp (Camp A) at the Camp Aldrich Conference Center, 245 NE 30th Road, Great Bend, KS 67530 on June 19th. The initial report indicated that seven adults had awoken to bats in the Sun-A-Risen cabin on Sunday, June 20th. On June 21st, an administrator from Camp A contacted KDHE-BSE regarding a possible additional exposure to bats among a second group of adult chaperones. On the night of June 20th, when the lights were turned off for bedtime in Pleasant View cabin six adult chaperones saw bats flying around the cabin. The children that were staying in the cabin were evacuated and moved to another cabin without bats. The six adult chaperones had also slept in Pleasant View cabin on the night of June 19th.

Six cabins are available from April 1st through October 31st each year. The cabins are enclosed and have central air. The capacity of each cabin differs but can hold a range of 16 to 40 people. Contracts obtained from the camping facility indicated that 14 camps had taken place at the facility since April 2010, and of those four camps (Camp A, B, C, and D) had overnight stays at the facility.

In response to this report, an investigation was initiated by staff from KDHE-BSE and the Barton County Health Department (BCHD) to assess potential rabies exposure in camp attendees and to identify any additional camps with potential exposure to bats.

Methods

Epidemiologic Investigation

Staff from BCHD conducted preliminary interviews with the 13 Camp A adult chaperones who were potentially exposed to bats. Bats were reported in the Sun-A-Risen and Pleasant View cabins. One individual had reported a possible bite while sleeping in the Sun-A-Risen cabin and on exam had two small puncture wounds with a scratch beneath the punctures on his left lower leg. Another individual reported blood on their sheets when they woke that morning. Based on the information obtained all 13 were recommended to receive rabies post-exposure prophylaxis (PEP). Information from the camp facility indicated a previous infestation of bats during the summer of 2009 in three cabins on the camp grounds; Martin, Pleasant View and Sun-A-Risen (FIGURE 1).

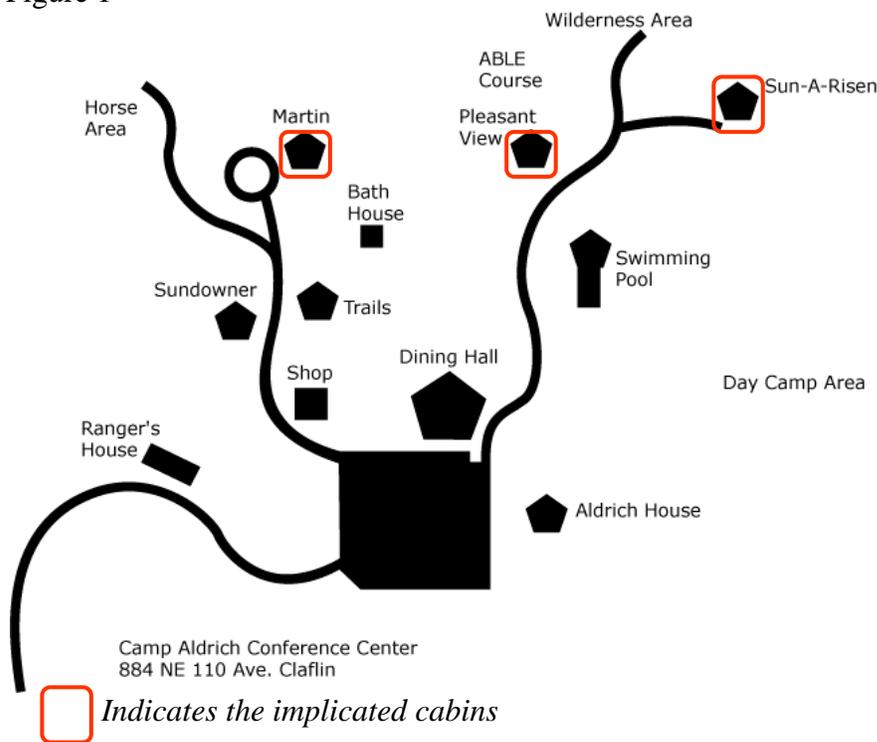
A paper-based risk assessment form was developed and administered to people who stayed in the implicated cabins to obtain additional information regarding potential exposure to bats. The information collected was used to make recommendations for PEP.

Contact information for the camp coordinator for Camps B, C, and D were obtained and KDHE-BSE contacted each coordinator to determine if bats were reported in any of the cabins during their stay. Camps B and C reported that no bats were seen during their stay.

Camp D, which was held June 14th - 17th, reported bats in two cabins; Martin and Sun-A-Risen. An adult chaperone woke to bats flying around Martin cabin. A 9 year old, who was playing a gaming system around 2 A.M. on the 16th, saw bats flying around in Sun-A-Risen cabin. Neither incident was reported to the camp director.

Martin and Sun-A-Risen cabins have a sleeping capacity of 40 individuals each. Individuals who attended Camp D were from Finney, Reno, Saline, Sedgwick, and Shawnee counties. Local Health Departments were provided a list of attendees that slept in the implicated cabins and were asked to use the risk assessment form to identify exposures and to make recommendations for rabies PEP. In addition a Kansas Health Alert Network (KS-HAN) message was sent to the local health departments (LHDs), physicians and hospitals in those counties to notify them of the potential rabies exposure and provide the risk assessment form.

Figure 1



Environmental Assessment

An inspection of the camp facility was conducted by World Pest Control on June 20th. Bat droppings were observed on some of the bunks as well as outside of cabins Pleasant View and Sun-A-Risen. No bats were seen in the cabins during the inspection. Recommendations were made by the company on how to exclude bats from the cabins and a follow-up appointment has been schedule to ensure that all bat-entry points have been sealed.

Results

Epidemiologic Investigation

All 75 campers associated with Camp D were contacted by their respective LHD. Recommendations for PEP were made to all based on the information provided. A total of 3 Camp D attendees refused PEP.

Table1: Attendee Information for Camp D (N=75)

<i>County</i>	<i># attending camp</i>
Finney	6
Reno	25
Saline	14**
Shawnee	16*
Sedgwick	14

* One individual refused PEP.

** Two individuals refused PEP.

In total, 88 males from Camp A and D were recommended to start PEP. Ages ranged from 7-69 years of age with a median of 10 years of age. A total of four individuals did not report age. Three individuals refused PEP. As of July 6th all attendees of Camp A have completed rabies post-exposure prophylaxis.

Discussion

This was an investigation of a potential rabies exposure to bats while attending a summer camp in Barton County. Summer camps share habitats favored by bats and other wildlife. Campers may come into contact with bats that are either roosting in camp buildings or flying among camp facilities while foraging. From 1990-2007, a total of 34 human cases of rabies were attributed to bat exposure in the United States. In 23 of the cases either a bite or physical contact with a bat was reported and in 11 cases, no bat encounter was reported. For these 11 cases, an unreported or unnoticed bat bite remains the most reasonable cause due to the genetic sequences of the human rabies viruses closely matched those of specific species of bats¹. A bat has small teeth and their bite can leave small marks making it difficult to determine if an exposure has occurred. In 1999, the Advisory Committee on Immunization Practices (ACIP) updated rabies post-exposure prophylaxis recommendations to include incidents with bats in which there was a “reasonable probability that exposure has occurred”. These types of incidents include “direct contact with a bat; a bite, scratch, or mucous membrane contact with bat saliva or nervous tissue; a sleeping person awakening to find a bat in the room; or an adult witnessing a bat in the room with a previously unattended child, or a mentally disabled or intoxicated person”².

On March 19th, 2010, ACIP recommended a reduced 4 dose series for post-exposure prophylaxis of immunocompetent individuals. The reduction in the number of doses was based in part on evidence from experimental animal work, clinical studies, rabies virus

pathogenesis data, and epidemiologic surveillance. These studies indicated that rabies immune globulin (RIG) plus four doses of vaccine confer adequate immune responses and that a fifth dose does not contribute to more favorable outcomes³. These new recommendations lead KDHE-BSE to recommend that individuals that are immunocompetent complete a 4 dose series for individuals who have not received pre-exposure rabies prophylaxis.

Recommendations

Local Health Departments should identify a point-of-contact for each camp facility in their county and provide information on reporting procedures for outbreaks and reportable diseases (i.e. county-specific phone numbers and the Epidemiology Hotline). In addition, provide information regarding rabies prevention, specifically how to avoid exposures to wild animals and bats. Bat education should be a routine part of a camp safety briefing to include information about bat avoidance, reporting bats in facilities and what to do if campers come into direct contact with a bat. If bats are seen in buildings that are occupied by sleeping unattended children, attempts should be made to capture the bat and submit for testing. Testing the bat can reduce the need for PEP.

Providing guidance to clinicians regarding appropriate use of PEP is critical. A risk assessment should be used to determine if an individual was exposed to a potentially rabid animal. In situations where the animal is not available for observation or testing and a possible exposure has occurred, the clinician can seek guidance from the local or state health department for PEP recommendations. Assessing the situation can be difficult; information on the animal, type of exposure (bite or non-bite), the circumstances of the incident, and the vaccination status of the animal should all be taken into account when making the decision to start PEP.

References

1. Centers for Disease Control and Prevention. Human Rabies Prevention --- United States, 2008 Recommendations of the Advisory Committee on Immunization Practices. MMWR Morb Mortal Wkly Rep. 2008; 57(RR03):1-26,28.
2. Centers for Disease Control and Prevention. Human Rabies Prevention-United States, 1999; Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR Morb Mortal Wkly Rep. 1999; 48(RR-1): 1-21.
3. Centers for Disease Control and Prevention. Use of a Reduced (4-dose) Vaccine Schedule for Postexposure Prophylaxis to Prevent Human Rabies. Recommendations of the Advisory Committee on Immunization Practices. MMWR Morb Mortal Wkly Rep. 2010; 59(RR2): 1-9.

Attachments

Appendix A – Risk Assessment Tool

Appendix B – Inspection Report from World Pest Control

Appendix C – Informational Letters for Patients Receiving PEP from Camp D

Report author: Jamie DeMent and Dr. Ingrid Trevino-Garrison (Kansas Department of Health and Environment, Bureau of Surveillance and Epidemiology)

Investigated by:

Barton County Health Department

1300 Kansas Ave

Great Bend, KS 67530

<http://www.bartoncounty.org/health/index.htm>

Finney County Health Department

919 W. Zerr Rd

Garden City, KS 67846

<http://www.finneycounty.org/index.aspx?NID=139>

Reno County Health Department

209 W. 2nd

Hutchinson, KS 67501

<http://www.renogov.org/health/>

Salina-Saline County Health Department

125 W. Elm

Salina, KS 67401

<http://www.ssched.org/>

Shawnee County Health Department

1615 SW 8th Ave.

Topeka, KS 66606

<http://www.snco.us/ha/>

Sedgwick County Health Department

1900 E. 9th Street

Wichita, KS 67214

<http://www.sedgwickcounty.org/healthdept/>

Kansas Department of Health & Environment

Bureau of Surveillance and Epidemiology

1000 SW Jackson St., Suite 210

Topeka, KS 66612

Epidemiology Hotline: (877) 427-7317

epihotline@kdheks.gov

<http://www.kdheks.gov/epi>

Our Vision and Mission

As the state's environmental protection and public health agency, KDHE promotes responsible choices to protect the health and environment for all Kansans.

Through education, direct services, and the assessment of data and trends, coupled with policy development and enforcement, KDHE will improve health and quality of life. We prevent injuries, illness, and foster a safe and sustainable environment for the people of Kansas.

APPENDIX A

Camp Aldrich Bat Exposure Assessment Form

If the camper's name is **BOLDED**, this individual is an adult; if the name is in normal print this is a child. Please ask to speak with the guardian of the child.

Hello. My Name is [YOUR NAME], and I am calling from the ----- County Health Department. We are assessing the potential exposure to bats among attendees at Camp Aldrich in Great Bend, KS. Bats are known to carry rabies and we are trying to determine the need for post-exposure immunization. We have been working with the camp coordinators, and to help with our investigation the coordinators have provided us a list of persons believed to have attended a camp during this time period. I am calling for [PATRON NAME].

Is he or she available?

If YES: Proceed to next paragraph when speaking with identified patron.

If NO: Is there a time that would be convenient for me to call back?

If YES: Record on Tracking Sheet.

If NO: Leave message using the text provided.

[Repeat if necessary when speaking with correct PATRON: Hello. My Name is [YOUR NAME], and I am calling from the ----- County Health Department. We are assessing the potential exposure to bats among attendees at Camp Aldrich in Great Bend, KS. Bats are known to carry rabies and we are trying to determine the need for post-exposure immunization. We have been working with the camp coordinators, and to help with our investigation the coordinators have provided us a list of names of persons believed to have attended a camp during this time period.

To assess the situation we are collecting information from individuals who attended the camp. Your participation is completely voluntary, and any information you provide will be kept strictly confidential.

If guardian is completing the assessment form record name here:

- 1. Last Name _____
- 2. First Name _____
- 3. Phone # _____
- 4. Address _____
- 5. City _____
- 6. Zip Code _____
- 7. County of Residence _____
- 8. Age in Years _____
- 9. Sex Male Female
- 10. Race _____
- 11. Ethnicity _____
- 12. Did you stay at Camp Aldrich in since May 2010?
 - a. If yes, which group were you with?
 - b. If yes, what dates did you stay at the camp? ___/___/___ - ___/___/___
- 13. What cabin did you stay in when you were at Camp Aldrich?
 - Martin Pleasant View Sun-A-Risen

14. Do you recall being directly touched by a bat, such as a bat bumping into you while flying around or other direct contact? Yes No

(If response Yes, then proceed to question 14b.)

(If response is No, then proceed to question 15)

14b. Was this contact against your bare skin? Yes No

(If response is Yes, then PEP is recommended)

(If response is No, proceed to next question)

15. Did you touch the teeth or mouth of a bat? Yes No

(If response is YES, then PEP is recommended)

(If response is NO, proceed to next question)

16. Do you recall being bitten by a bat? Yes No

(If response is Yes, then PEP is recommended)

(If response is No, then proceed to next question)

17. Did you ever wake up to find a bat in the room where you were sleeping?

Yes No

(If response if YES, proceed to the next question)

(If response if NO, then NO PEP is recommended****)

18. Bats are small animals and a bite may not be as obvious and a bite would likely feel like a pinch. Do you feel reasonably certain that if a bat were to have contact with you during the night you would wake up or acknowledge that some contact occurred?

Yes Not sure No

(If Yes, PEP not required)

(If Not sure, call KDHE for additional consultation 877-427-7317)

(If No, then PEP recommended)

****At this time based on the information you have provided, post-exposure immunization is not recommended. If additional information becomes available and the decision is made to change the recommendation for you or your child, you will be contacted. Thank you for your cooperation in this matter.

Frequently Asked Questions

A bite from a potential rabid animal is the highest risk of exposure, followed by contact with fresh wet saliva into the eyes or mouth of a person. The camp grounds are a natural setting for bats and seeing bats while attending the camp would not constitute an exposure.

NOTE: The following scenarios are not considered an exposure:

- Hearing noises of bats (i.e. fluttering of wings, squeaks)
- Seeing bats hanging on a wall or roof
- Being around bat feces

Frequently Asked Questions

What is Rabies?

Rabies is a disease of the nervous system caused by a virus. It results from an exposure to the saliva of an animal infected with rabies. Rabies is a fatal disease.

Who gets Rabies?

In the United States, rabies among humans is rare although anyone can get it after an exposure to a rabid animal. It is spread when the virus in an animal's saliva, or other infectious body fluid, enters an open cut, wound, mouth, or eyes.

What is an exposure to Rabies?

There are two types of exposures, a bite and non-bite. A bite is any puncture of the skin by teeth. A non-bite exposure occurs when saliva, brain tissue, or spinal fluid from an animal with rabies enters any scratch, abrasion, open wound, eyes, or mouth. The petting of a rabid animal is not considered an exposure.

What animals get Rabies?

Only mammals are infected with rabies, however, some mammals are more likely to be infected with rabies than others. For example, skunks, raccoons, bats, foxes and coyotes are more likely to be infected. Rodents, rabbits, and hares almost never get rabies.

How can you tell if an animal is Rabid?

Although some animals with rabies look and act normal most develop either the furious or dumb form of the disease. "Furious rabies" is when the infected animal is easily excited or angered. "Dumb rabies" is when the infected animal appears paralyzed or dazed. The only sure way to tell if an animal has rabies is to kill it and test the brain for the rabies virus.

How long can animals spread Rabies?

Cats and dogs can spread rabies for 3-5 days before they become ill and during their illness. The amount of time varies for other animals.

What should you do if you are exposed to a rabid animal?

Immediately wash all bite wounds and scratches thoroughly with soap and water. See a doctor as soon as possible. After an exposure to a proven or suspected rabid animal, rabies shots must be started.

How can Rabies be prevented?

Vaccination of dogs and cats against rabies is the best way to reduce human exposure. Avoid contact with wild animals and do not keep wild animals as pets. Control of stray animals can decrease both animal and human exposures to rabies. Animals which have contact with an animal that may have rabies should be reported to the local animal control agency.

Where can you get more information?

- Your Local Health Department
- Kansas Department of Health and Environment, Epidemiologic Services Section at (877) 427-7317
- <http://www.cdc.gov/health/default.htm>
- Your doctor, nurse, or local health center

Contact KDHE Bureau of Surveillance and Epidemiology at 1-877-427-7317 for further assistance.

APPENDIX B

World Pest Control
206 N Main
Sylvan Grove, KS 67481
1-800-966-9599



Sunflower Services
PO Box 77
Ott, KS 67565
1-800-352-2598

A call was received to do an Emergency Inspection of Camp Aldrich's cabin's for signs of bat activity on 6-20-10. Upon arrival we were briefed on the immediate concerns of staff/coordinators/property management. The night before bats were reported in Sunrisesen cabin. With at least 2 people stating they thought they were bitten. We did not talk to any of these persons, as they were with the Great Bend County Health Department receiving Rabies vaccination. We proceeded to that cabin to inspect it first. This cabin & one other (Pleasantview) has had previous sightings of bats before. After inspecting the cabin, we did not see any live bats, but we did see evidence of bats. Droppings were noted on some of the bunk beds and also seen on the ground outside the cabin. During our inspection, we noted several areas that could allow entry into the cabin and advised the property manager to seal these areas. We also suggested that the top of the chimney be screened with smaller wire. After we inspected this location, we went on to each of the other sleeping cabins located on the property, and also the Medical Cabin. No visible bats were seen at this time. Again recommendation was made on how to secure areas that might allow access into the cabins. Discussion was held on waiting until dusk, so that the bats would/should be out of the structure (if any were present), and not get sealed in.

6/21/10 A follow up call was made to see how the sealing went & to see if any more sighting of bats was noted. Mark Brantley advised us that the 2nd cabin that we had inspected had 6 bats that had emerged inside of the cabin. One of the possibilities discussed was the bats had gotten sealed in between the roof decking & the interior ceiling boards and could not escape any other way, but inside the cabin. Also during this phone call, I requested a fax number as I had gathered some general information on bats, bat droppings and recent droppings to assist in verifying signs of bats.

6/22/10 & 6/23/10 Calls was made to Brent's voice mail and messages were left. No return calls were made.

6/24/10 Received call from property manager Todd Ammeter. He requested us to do a follow up inspection on the properties cabins next week to ensure that all entry points had been sealed. We will be calling Todd to schedule a date for this inspection.

Names of Cabins inspected: Sunrisesen, Pleasantview, Martin Lodge, Trail's End Lodge, Sundowner Lodge, Aldrich House Lodge (this is also the order the cabins were check inspected)

Inspecting Personnel: Brian & Shonda Meiter,
Brian's cell: 785-658-7704 Shonda's cell: 785-658-7129

APPENDIX C

PATIENT NAME

You will receive your rabies vaccinations at:

ADDRESS

ADDRESS

CITY, STATE ZIP

Their hours are Mon-Fri 8am-8pm, Saturday 9am-6pm, Sunday noon-6pm. No appointment is necessary as it is a walk in clinic.

Per their policy, you will need FIVE doses. Your letter from the Kansas Department of Health and Environment (KDHE) has been updated to reflect this. They have been in contact with the clinic in order to set things up further.

Bring your ID, insurance information (just in case) and paperwork we provided.

BILLING INFORMATION: Upon arrival, have the billing department contact *Mark Dean with Barton County Community College at 620-793-0044*. They will then fax or email him an invoice and he will pay immediately at that time. The college address is also listed on your paperwork. The charge for vaccine is \$200 plus an injection fee (around \$20).

You may also contact Jamie at KDHE if you have any questions. 785-220-1044.

Let me know if you need anything.

816-582-3116

Bwohlwend@yahoo.com

Dr. Bryan

1300 Kansas Avenue, Suite B
Great Bend, Kansas 67530



(620) 793-1800

June 22, 2010

Dear Provider,

During the weeklong "Camp Hope" located at Camp Aldridge near Great Bend, Kansas several volunteers were awakened in the morning to the realization that there were numerous bats in their sleeping quarters.

According to CDC guidelines and in consultation with PHD at the Kansas Department of Health & Environment -persons waking to find a bat in their bedroom should be started on "post exposure treatment for rabies".

Treatment began 6/20/10 with the first of four doses of rabies vaccine being given (5 doses for immunocompromised patients). Days 0-3-7-14-(28)

Because these volunteers will be leaving our area prior to the finishing of the series, we are requesting your assistance to provide a dose of rabies vaccine that will allow completion of the treatment regimen. Attached is a list of doses and dates of vaccine and MRIG that has been administered. The physician overseeing this treatment is Dr. Bryan Wahlwend, 2101 N. Waldron, Hutchinson, Kansas 67502 (620-669-2505). Other agencies that will be available for questions are Barton County Health Department, 1300 Kansas, Great Bend, KS. 67530 (620-793-1800); Kansas Department of Health & Environment, Jamie DeMent, Bureau of Zoonoses, (877-427-7317)

Thank you for assisting in the completion of this treatment program.

Billing should be sent to the Barton County Community College, % Mark Dean, Dean of Administration, 245 NE 30 Rd, Great Bend, KS. 67530 (620-793-2701).

Dr. Bryan Wahlwend
Hutchinson Clinic, Hutchinson, KS
Volunteer Camp Hope

Lily Atkins, Administrator
Barton County Health Department
Great Bend, Kansas

Date: 06/22/2010

To: Medical Provider

From: Karen Winkelman, RN
Barton County Health Department

Regarding:

The above named individual received the following rabies post exposure prophylaxis:

Rabies Vaccine (RabAvert) Schedule - Day 0, 3, 7, 14

Day 0 – #1 dose administered on 06/20/2010

Day 3 – #2 dose administered on 06/23/2010

Day 7 – #3 dose due on 06/27/2010

Day 14 –#4 dose due on 07/04/2010

Rabies Immune Globulin (recommended dose 0.133 ml/kg)

Weight _____ kg

_____ ml administered IM on 06/22/2010

If you have any questions, I can be reached @ Barton County Health Department @ 620-793-1902.