UC Agriculture & Natural Resources

Proceedings of the Vertebrate Pest Conference

Title

Attitudes towards rabies in southern Texas: a need for public education

Permalink

<https://escholarship.org/uc/item/5qs97329>

Journal

Proceedings of the Vertebrate Pest Conference, 19(19)

ISSN

0507-6773

Authors

Kresta, Amy E.

Henke, Scott E.

Publication Date

2000

DOI

10.5070/V419110142

ATTITUDES TOWARD RABIES IN SOUTHERN TEXAS: A NEED FOR PUBLIC EDUCATION

AMY E. KRESTA, and SCOTT E. HENKE, Caesar Kleberg Wildlife Research Institute, MSC 218, Texas A&M University-Kingsville, Kingsville, Texas 78363.

ABSTRACT: An epidemic of canine rabies transmitted by coyotes (*Canis latrans*) began in 1988 along the Texas-Mexico border. The disease spread rapidly throughout southern Texas and resulted in two human deaths and >2,000 rabies exposures in which prophylactic treatment was required. To combat this epidemic, the Texas Department of Health conducted an oral vaccination program that targeted free-ranging coyotes and offered free immunization of pets. However, the latter program met with resistance from the public. We hypothesized that the general public lacked knowledge as to the seriousness and spread of rabies, which resulted in their apathy for taking precautionary measures. To test our hypothesis, we surveyed adult residents of the Lower Rio Grande Valley in Texas to assess their knowledge of rabies and to determine their reasons for lack of compliance with the pet vaccination law. We approached 560 adults (i.e., >21 years old) and asked them to take an oral questionnaire concerning their knowledge of rabies; response rate was 40% (223 out of 560). Mean score of respondents was 59% of the maximum possible score. Adults lacked general knowledge of rabies transmission and mortality. Although the majority (89%) of respondents knew that it was unlawful to own unvaccinated dogs and cats against rabies, only 23% (n=52) claimed to vaccinate their pets. Of those who responded that they regularly vaccinate their pets, 50% did it to promote pet health and the remaining 50% of respondents admitted to being fearful of repercussions if they did not obey the law. Reasons for not vaccinating pets included laziness (n=46, 27%), liability of claiming pet ownership (n=31, 18%), cost (n=29, 17%), lack of law enforcement concerning unvaccinated pets (n=26, 15%), unaware of rabies epidemic in area (n=19, 11%), "dime-a-dozen" attitude [i.e., can always get another pet] (n=15, 9%), and governmental conspiracy to locate illegal aliens in the United States (n=5, 3%). Educational programs are needed in the Lower Rio Grande Valley of Texas to increase the general public's awareness and knowledge of rabies.

KEY WORDS: coyote, public attitude, questionnaire, rabies, southern Texas, survey

Proc. 19th Vertebr. Pest Conf. (T.P. Salmon & A.C. Crabb, Eds.) Published at Univ. of Calif., Davis. 2000.

INTRODUCTION

On 4 August 1999 the owner of a three month old puppy was bit as the owner attempted to remove the dog from under a house. The puppy, days later, began exhibiting neurologic symptoms and tested positive for rabies (L. E. Robinson, DVM, Dept. of Health, pers. comm.). During the same week a 1.5 year old unvaccinated female dog died suddenly after it displayed increased aggression toward other dogs (L. E. Robinson, DVM, Dept. of Health, pers. comm.). However, the dog was reported to be affectionate toward its owners and often would lick them. The dog also tested positive for rabies. A third case of rabies during August 1999 in southern Texas was reported by an animal control officer who picked up a stray displaying neurologic symptoms within city limits (L. E. Robinson, DVM, Dept. of Health, pers. comm.). In each case prophylactic treatment of humans was required because of exposure to rabies through salivary contact with mucous membranes or open cuts. However, all instances could have been prevented if pets were vaccinated regularly against rabies.

An epidemic of canine rabies transmitted by coyotes (*Canis latrans*) has become a serious problem in southern Texas. The epidemic began in 1988 along the Texas-Mexico border and has quickly spread throughout southern Texas in an arc from Corpus Christi to San Antonio to Laredo (Clark 1994). To date, rabies has been responsible for two human deaths and >2,000 rabies exposures in which prophylactic treatment was required (Fearneyhough et al. 1998).

The Texas Department of Health (TDH) has been combating the rabies problem with a number of initiatives. In 1995, TDH began an oral vaccination program in which vaccine-laden baits were distributed to free-ranging coyotes (Clark 1994). This program has continued to date. Also, TDH has implemented a public education program that has given free information about rabies to the general public, has delivered lectures to schools and organizations about rabies and its spread, and has offered free immunizations of pets. The education program emphasized that canine rabies within southern Texas was a human-induced problem due to the lack of vaccinated pets and that it was unlawful to own unvaccinated pets. Unfortunately, the general public has appeared apathetic concerning the latter program of the TDH.

We hypothesized that the general public in southern Texas lacked adequate knowledge as to the seriousness and spread of rabies, which resulted in their apathy for taking precautionary measures such as the vaccination of pets. Therefore, the objectives of our study were to assess the knowledge of the adult general public concerning rabies and to determine their reasons for their lack of compliance with the pet vaccination law.

METHODS

To assess public knowledge of rabies, we developed an oral survey. The survey was designed by wildlife biologists and veterinarians knowledgeable about rabies transmission and spread. The instrument was pre-tested

by university undergraduates to examine question clarity, subject relevance, and general question flow (Dillman 1978). The final survey instrument consisted of two pages containing 20 questions; however, several questions had multiple parts (Table 1).

We selected four locations within the Lower Rio Grande Valley of southern Texas; Raymondville in Willacy County, Harlingen and Brownsville in Cameron County, and McAllen in Hidalgo County were chosen in which to conduct our survey. The Lower Rio Grande Valley was selected because of the large number of positive canine rabies cases each year and the reported large quantity of free-roaming unvaccinated pets. Permission to ask their clientele to participate in our rabies survey and to distribute information about rabies was obtained from Wal-Mart stores at each location. General public >21 years old, who came to Wal-Mart, were approached at the store's entrance and asked to take our survey. Surveys were conducted in April and May 1999. To examine "non-response bias" we encouraged 8% of the initial non-respondents to take our survey. Scores of respondents and initial non-respondents were compared using Chi-square analysis with the Yates correction for continuity because the criterion had a single degree of freedom (Steel and Torrie 1980). We also used Chi-square analyses to determine if gender or residency type affected survey scores. Residency type was categorized as living in an urban center, suburban neighborhood, and rural location. Residency within urban centers was defined as living within the city proper with a population of $\geq 50,000$ residents. Residency within suburban neighborhoods was defined as living outside the city proper and within five miles of the city limits, or living in cities of <50,000 residents. Rural residency type was defined as living >5 miles outside of city limits. Ethnicity was not statistically analyzed due to small sample sizes of the non-Hispanic categories. Statistical tests were considered significant at $P \leq 0.05$. Descriptive statistics are presented as the mean ± 1 standard error.

RESULTS

Of the 560 adults that we approached, 223 adults initially agreed to take our survey resulting in a response rate of 40%. Twenty-six (8%) more adults who were initially non-respondents were encouraged to take our survey. Demographic data of respondents and non-respondents is given in Table 2. Mean score of individuals who originally said "yes" to our questionnaire (20.1 ± 2.3 [out of 34 possible points]; 59.1%) did not differ ($\chi^2=0.0002$; $P=0.99$; 1 df) from those who initially refused to take the survey (19.2 ± 2.7). Also, there were no differences in mean scores of correct responses between sex ($\chi^2=0.003$; $P=0.95$; 1 df), residency type ($\chi^2=0.58$; $P=0.75$; 2 df), or the interaction between the two main effects ($\chi^2=0.22$; $P=0.88$; 2 df). Therefore, results across gender and residency types were pooled and descriptive statistics are reported as the average of all respondents.

Mean score of respondents was 59% of the maximum possible score. Adults lacked general knowledge of rabies transmission and mortality. Only 130 (58%) of the respondents knew of the rabies outbreak in southern Texas

and fewer knew of rabies outbreaks in other regions of the state (10 to 35%). Although 220 (99%) of the respondents knew that humans can acquire rabies, there were fewer respondents who knew how rabies can be transmitted (Table 3).

Although the majority (89%) of respondents knew that it was unlawful to own unvaccinated dogs and cats against rabies, only 23% ($n=52$) claimed to vaccinate their pets. Of those who responded that they regularly vaccinate their pets, 50% did it to promote pet health and the remaining 50% of respondents admitted to being fearful of repercussions if they did not obey the law. Reasons given by the other 77% ($n=171$) of respondents for not vaccinating pets are given in Table 4.

DISCUSSION

The overall scores of respondents in this study reflected a lack of rabies knowledge possessed by adults in southern Texas. This, along with the fact that only 58% of the respondents were even aware of a rabies outbreak in southern Texas is cause for concern. In addition, respondents lacked knowledge about how rabies can be transmitted. This becomes even more important when looking at the percentage of respondents (57%) that knew of the risk of acquiring rabies from an unvaccinated pet and the percentage of respondents (77%) that owned unvaccinated pets. These percentages are cause for concern based on the fact that a rabies epidemic has been occurring in southern Texas for the last 11 years.

Previous efforts by TDH to educate the public about rabies and to increase participation in pet immunization programs have not been enough. It is critical for public education efforts to continue and to improve in the Lower Rio Grande Valley. Some possible ways to increase rabies awareness in the general public could be to include rabies education in the school curriculum. Often, the material learned by students is taken home and taught to the parents. Another approach may be to use the mass media (i.e., television, radio, newspapers, bill boards) as a means of raising rabies awareness. The repetition of the importance of pet vaccination needs to be viewed and heard by the general public in order for the public to understand the seriousness of rabies.

Nearly 50% of respondents claimed to live in urban or suburban areas. This group has a high risk of rabies exposure due to the high density of unvaccinated stray pets that occur within their area. In addition, individuals who live in rural settings and own unvaccinated pets also are at risk of exposure because rabid coyotes may interact with their pets. Therefore, law enforcement regarding pet vaccination laws needs to be heightened. Although this is difficult to do because of the cost and time investment, it seems necessary. People are not participating in free pet immunization clinics so perhaps liability needs to be placed more forcefully on pet owners. Enforcing vaccination laws should counteract many of the reasons for not vaccinating pets given by respondents in Table 4. Vaccination laws also might be abided more if uncollared and stray animals were removed from the area regularly. Such an approach may seem extreme but due to the large numbers of human exposures to rabies the situation in southern Texas demands extreme measures.

Table 1. Rabies survey used in this study with the correct responses marked.

Question	Response	
	Yes	No
1. Is there presently a rabies outbreak in Texas?	X	
a. Rabies can be found in South Texas.	X	
b. Rabies can be found in Central Texas.	X	
c. Rabies can be found in East Texas.	X	
d. Rabies can be found in West Texas.	X	
e. Rabies can be found in North Texas.	X	
2. Can humans acquire rabies?	X	
3. Is rabies a fatal disease to humans?	X	
4. Is rabies a fatal disease to wildlife?	X	
5. Can the following animals spread rabies?		
a. Cat	X	
b. Dog	X	
c. Bat	X	
d. Fish		X
e. Coyote	X	
f. Snake		X
g. Raccoon	X	
h. Skunk	X	
i. Bird		X
6. Is being bit by a rabid animal the only way to get rabies?		X
7. You can get rabies by touching the blood of a rabid animal.		X
8. You can get rabies by touching the saliva of a rabid animal.	X	
9. You can get rabies by touching the urine of a rabid animal.		X
10. You can get rabies by touching the feces of a rabid animal.		X
11. Can a rabies-vaccinated pet acquire rabies if bit by a rabid animal?		X
12. Is there a risk of acquiring rabies by playing with an unvaccinated dog or cat?	X	
13. Should you seek medical attention if bit by an animal?	X	
14. Rabies can be cured if medical attention is sought immediately.	X	
15. Rabies can be cured even after symptoms of the disease begin.		X
16. Is it against the law to own an unvaccinated dog or cat?	X	
17. Is it legal to move wild animals into the State of Texas?		X
...out of the State of Texas?	X	
...within the State of Texas?	X	

Table 1. continued

Question	Response	
	Yes	No
18. Do you or your family own a pet? If so, what type of animals? _____		
19. If you or your family own a dog or cat, is it currently vaccinated against rabies?		
20. How often should a dog or cat be vaccinated against rabies? Circle one.		
a. Every month		
b. Every six months		
c. Every year		
d. Every two years		
e. Every five years		
f. Dogs and cats do NOT have to be vaccinated against rabies.		

Table 2. Demographic data of respondents and non-respondents in the rabies knowledge survey.

	Number Respondents (%)	Number Non-Respondents (%)
Sample Size:	223 (40%)	26 (8%)
Gender:		
Male	108 (48%)	13 (50%)
Female	115 (52%)	13 (50%)
Residence type:		
Urban	33 (15%)	3 (12%)
Suburban	72 (32%)	10 (38%)
Rural	118 (53%)	13 (50%)
Ethnicity:		
Hispanic	209 (94%)	26 (100%)
White	13 (6%)	
Asian-American	1 (<1%)	

Table 3. Number and percentage of respondents who correctly answered questions regarding rabies transmission.

Question	Number Respondents (%)
Is being bit by an animal the only way to get rabies?	102 (46%)
You can get rabies by touching the blood of a rabid animal.	78 (35%)
You can get rabies by touching saliva of a rabid animal.	169 (76%)
You can get rabies by touching the urine of a rabid animal.	72 (32%)
You can get rabies by touching the feces of a rabid animal.	85 (38%)
Is there a risk of acquiring rabies by playing with an unvaccinated dog or cat?	127 (57%)

Table 4. Reasons given by respondents (n=171) for not vaccinating pets.

Response	Number Respondents (%)
Laziness	46 (27%)
Liability of claiming pet ownership	31 (18%)
Cost	29 (17%)
Lack of law enforcement concerning unvaccinated pets	26 (15%)
Unaware of rabies epidemic in area	19 (11%)
"Dime-a-dozen" attitude (i.e., can always get another pet)	15 (9%)
Governmental conspiracy to locate illegal aliens in U.S.	5 (3%)

Pet owners of southern Texas need to stop being too idle to care. With increased awareness and knowledge regarding rabies, the people of southern Texas can contribute to the eradication of canine rabies in Texas.

ACKNOWLEDGMENTS

We thank the Caesar Kleberg Wildlife Research Institute for providing funding and logistical support for this study. We also thank L. Gaston, K. Erwin, and J. Edwards for helping conduct surveys. This is Manuscript Number 00-114 of the Caesar Kleberg Wildlife Research Institute, Texas A&M University - Kingsville. This is Welder Wildlife Foundation Contribution Number 8544.

LITERATURE CITED

CLARK, K. A., S. U. NEILL, J. S. SMITH, P. J. WILSON, V. W. WHADFORD, and G. W.

MCKIRAHAN. 1994. Epizootic canine rabies transmitted by coyotes in south Texas. *Journal of the American Veterinary Medical Association* 204:536-540.

DILLMAN, D.A. 1978. Mail and telephone surveys: the total design method. John Wiley and Sons, New York, New York.

FEARNEYHOUGH, M. G., P. J. WILSON, K. A. CLARK, D. R. SMITH, D. H. JOHNSTON, B. N. HICKS, and G. M. MOORE. 1998. Results of an oral rabies vaccination program for coyotes. *Journal of the American Veterinary Medical Association*. 212:498-502.

STEEL, R.G. D., and J. H. TORRIE. 1980. Principles and procedures of statistics: a biometrical approach. McGraw-Hill Book Company, New York, New York.