

**CENTER FOR DISEASE PREVENTION & EPIDEMIOLOGY • OREGON HEALTH DIVISION**

**ANIMAL BITES AND THE RISK OF RABIES IN OREGON**

ON MARCH 15, 1995, a 4-year-old girl from Lewis County, Washington died of rabies. Family members reported that a bat had been found in her bedroom a month earlier, but there was no evidence of a bite, and public health officials were not consulted. The bat was killed and buried in the yard. The bat was exhumed, and despite trauma, decomposition, and partial consumption by maggots, residual brain tissue tested positive for rabies by direct fluorescent antibody (DFA) and nucleotide sequence analysis (NSA). The viral isolates from the child and the bat were identical by NSA.

This unfortunate case serves as a reminder that rabies, while extremely rare, is an ever-present risk in most of the world, including Oregon. Concern about rabies is widespread, and considerable effort goes into evaluating and managing patients who *may* have been exposed. In this issue we will review data from recent years of animal testing for rabies, and general guidelines for working with public health experts in managing bite situations.

During 1990-1995, an average of 9% of bats tested have been positive for rabies (see table). This is not representative of the bat population in Oregon, of course; these are almost all bats that were found sick or dead and that bit or otherwise may have contacted humans. The Pacific Northwest remains free of enzootic rabies in terrestrial animals, meaning that rabies has not been established here in any mammals other than

bats. In various parts of the country, skunks, foxes, raccoons, and (in South Texas) coyotes are reservoirs.

Even in Oregon, however, other mammals can be bitten by rabid bats, so the risk of rabies from bites by these other species needs to be evaluated on a case-by-case basis. Since 1990, most reported cases of non-bat animal rabies have been in foxes (10 isolates; see table), particularly in southwestern counties. Without exception, NSA indicates a bat origin for these isolates in Oregon. The occasional importation of rabid animals, including pets, from areas where rabies is established in terrestrial animals also remains a potential concern. Who can forget the terrifying story\* of Pancho, the pugnacious Pekinese?

**WHY THE CONCERN?**

Because rabies (the disease) is virtually 100% fatal, potential exposures to a rabid animal must be carefully evaluated in order to make an informed decision about the need for postexposure prophylaxis (PEP). PEP is highly effective, in most cases, but it is extremely expensive (\$1000-2500) and not without side effects, so it cannot be dispensed casually.

By law, significant exposures to animals susceptible to rabies must be reported within 24 hours to the local health department (LHD). An exposure is a bite, scratch or other laceration that results in contact between saliva and non-intact skin or a mucous membrane. Cerebrospinal fluid and brain tissue from rabid animals may also be infectious. Exposure to animal blood, urine, feces, or skunk sprays should not generally raise concern about rabies.

A list of LHD contact people and their phone numbers is provided on the back. A prompt investigation by these individuals, who are knowledgeable about animal behavior and the ecology of rabies in Oregon, can provide guidance for the physician managing exposed patients.

Health Division epidemiologists act as consultants to LHDs and on referral to other animal control offices.

**DEALING WITH BITES**

All bats should be considered rabid unless proven otherwise. Persons should be strongly discouraged from handling bats, particularly those that are apparently sick or acting abnormally. The recent Washington case is a reminder that bat bites may be difficult to rule out, and we encourage persons to consult their LHD experts when bats are found around persons who have recently been dormant or who are unable because of age or infirmity to give a satisfactory history. When bites cannot be excluded, PEP should be considered.

A number of factors are considered when evaluating other animal bites, including nature of the incident (provoked or unprovoked), time of year (in Oregon, rabies is unlikely in winter, when bats are inactive), offending species, rabies vaccination status, characteristics of the biting animal (if known), etc. The investigator will make an effort to collect all relevant information. Animal bites are considered "provoked" (in this technical sense) when they involve handling or petting, cornering, taking away food, disciplining, falling on, releasing from a trap, intervening in flight or predation, helping after injury (hit by a car),.... Unprovoked bites are when animals having one or more open avenues of escape deliberately cross neutral space and attack. *Such bites are rare.*

**CONSIDERATION AND OBSERVATION**

Most rabid dogs and cats begin to manifest signs of CNS disease before they become infectious (i.e., begin to shed virus in saliva)—but in some cases clinical onset may lag by two or three days. It is to assess communicability rather than infection per se that a 10-day observation period ("quarantine") is imposed on apparently healthy dogs and cats that have bitten someone. Most of this period is a margin of safety; any dog or cat that is

**Rabies Tests in Oregon, 1990-1995**  
 (number positive/total tested)

	bat	cat	dog	fox
1990	1/29	0/61	0/34	0/1
1991	4/40	1/85	1/54	1/4
1992	2/29	0/98	0/54	0/4
1993	2/43	1/96	0/34	4/10
1994	10/47	0/88	0/58	3/7
1995	3/47	0/98	0/61	2/5
total	22/235	2/526	1/295	10/31

\*CD Summary 40(12); June 4 1991.

eating and drinking normally more than three or four days after biting someone is highly unlikely to have been shedding virus at the time of the bite. Quarantine spares us from having to kill all dogs and cats involved in bite situations, and saves taxpayers the expense of needless rabies testing in low-risk situations. Observation is inappropriate for animals that are sick to begin with.

Data about viral shedding in other species are extremely limited, and thus quarantine is never appropriate for wild animals, including wolves and wolf hybrids. Rabies in livestock is not a big problem in Oregon (only one case—a horse—ever reported, and it was not confirmed), but the possibility cannot be excluded. As with any animal (other than dogs and cats), the only way to be sure is to kill and test—often economically or otherwise undesirable.

Small rodents (mice, rats, hamsters, squirrels, etc.) and lagomorphs (hares and rabbits) almost never contract rabies; absent extraordinary circumstances, bites from such animals should raise no concern about rabies. When in doubt about these or any other animal bites, however, contact your LHD representatives.

**RABIES TESTING**

When bona fide reasons exist to be concerned about rabies, the state public health lab (CPHL) will test animals that have bitten people. There is no charge for this testing, but these examinations at public expense can *only* be authorized by LHD officials or state epidemiologists. Physicians can avoid potential embarrassment by never telling a patient that an animal should or will be tested by the CPHL unless you have consulted with

LHD representatives. As a useful alternative for patients who won't take no for an answer, the Veterinary Diagnostics Laboratory at Oregon State University (541/737-3261) will test almost anything, including your patient's pet gerbil, for a modest fee (currently \$16).

Animals to be tested should be decapitated. Heads should be refrigerated and shipped with ice packs — never frozen. Results may be inconclusive if the specimen is decomposed, perforated with bullet holes, or has been frozen.

**POST-EXPOSURE PROPHYLAXIS**

Perhaps the most important step after an animal bite is the prompt and thorough cleaning of wounds with soap and water. This should be stressed, particularly to patients who call for advice about minor injuries. The need for tetanus prophylaxis should also be evaluated. Specific anti-rabies measures, when indicated, consist of human rabies immunoglobulin (HRIG), given as soon as possible, and a vaccine series (5 doses IM in the deltoid over 28 days), initiated at the same time. Forget those hoary tales about big needles in the stomach! There are no contraindications to PEP for persons who have been exposed.

**Announcements**

**A** HEARING ABOUT proposed rules implementing the Oregon State Cancer Registry (CD Summary; Dec. 26, 1995) will be held in Portland at the State Office Building at 1:30 pm on February 23. For copies of the proposed rules or more information, call 503/731-4273.

**LHD Contacts for Animal Bite Reports**

County	Contact person (s)	Phone(s)
Baker	Beth Baggerly RN	523-8211
Benton	Fred Vandehey RS; Bob Wilson RS	757-6841
Clackamas	Steve Dahl RS Jim Buckley RS	655-8350
Clatsop	Sharon Kubik RN	325-8500
Columbia	Mark Edington RS; Karen Ladd RN	397-1501 x4651
Coos	Linda Manous RN	756-2020 x518
Crook	Russell Hanson RS Connie Hoffstetter RN	447-8155 447-5165
Curry	Pauly Nash RN, Pat Cleary Gail Freeman RN (Brookings) Margaret McDonald RN (Port Orford)	247-5501 469-3836 332-4041
Deschutes	Roger Everette RS	388-6575
Douglas	David Bussen RS; Terry Westfall RS	440-3571
Gilliam	Dennis Bruneau PA, David Jones PA	384-2061
Grant	Johnnie Titus RN	575-0429
Harney	Michelle Davies RN	573-2271
Hood River	Scott Fitch RS	386-1115
Jackson	Gary Stevens RS	776-7316
Jefferson	Mary Jane Cervenka RS	475-4456
Josephine	Pam Ford RN	474-5335
Klamath	Ellen Pugmina RS	882-8846 883-1122
Lake	Rusty Dodge RN	947-6045
Lane	Stan Petrasek RS,	687-3731
Lincoln	Amy Chapman RS	265-4179 x2442
Linn	Nancy Skoien	967-3821
Malheur	Ray Huff RS	473-5186
Marion	Connie Theobald; Joe Fowler RS	588-5346
Morrow	Laura Burnside-McElligott RN	676-5421
Multnomah	Multnomah County Animal Control	667-7387
Polk	Gene Clemens RS	623-9237
Tillamook	Karen Backman RS	842-3900
Umatilla	Sharon Kline RN (Pendleton) Karla Mayberry RN (Hermiston) Jill Stiffler RN (Milton-Freewater)	278-5432 567-3113 938-5598
Wallowa	Mary Lou Brink RN	426-3627 x4848
Wasco-Sherman	Glenn Pierce RS; John Calasnik RS	296-4636
Washington	Joyce Westby RN Roberta Parsons RN Animal Control	681-3742 681-3743 640-7041
Wheeler	Tom White, PA	763-2725
Yamhill	Jan Paine RN	434-7525

**OHSU** is seeking candidates for 4 general preventive medicine/public health residency positions (PGY2 or above), available in July 1996. Practicum sites include a managed care occupation health setting, local health department, state health department, and an academic research center. For more information, contact: Evelyn Whitlock, MD, MPH (503/494-2550; whitlockev@chr.mts.kpnw.org).