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Animal Rabies: 1998-February 2000

Rabies is an acute viral illness that can affect all warm-blooded animals, causing progressive paralysis and then death. Rabies virus is concentrated in the saliva of affected animals who may demonstrate obviously deranged behavior or more subtle clinical signs, such as excessive salivation.

Rabies is enzootic in the fox population of northern and western Alaska. Periodic epizootics (epidemics among animals) have been documented every 3-5 years, with the last one occurring in 1997. Epizootics tend to occur during late winter; sporadic cases of rabies occur year round. Since the elimination of rabies from foxes in Alaska is impractical, current rabies control efforts focus on reducing the chance of rabies transmission from wildlife to domestic animals by vaccinating dogs and cats, and on providing prompt post-exposure treatment to exposed humans.

During 1998 to February 2000, there were 48 laboratory confirmed cases of animal rabies: 30 red foxes, 12 arctic foxes, 4 dogs, 1 wolf, and 1 coyote. Most cases occurred along the northern and western coasts of Alaska. (Figure 1)

Dogs and cats that have progressed to the stage of having rabies virus in their saliva will exhibit obvious neurologic signs or be dead within 10 days. The incubation period for rabies in humans can be as short as 10 days and up to 1 year but is generally 4-7 weeks. The incubation period is variable because virus in infected saliva is inoculated into muscle or mucous membranes by a bite and replicates at the site of the wound. Virus then travels via peripheral nerves to the spinal cord and brain. The density of sensory nerves at the bite site and the distance from the site to the brain affects the duration of the incubation period. Testing animals to diagnose rabies requires post mortem examination of brain tissue using fluorescent antibody staining. No pre-mortem tests are available for animals.

#### **Public Health Recommendations**

**1. Rapidly follow-up all human exposures** - The most important aspect of managing a patient exposed to a potentially rabid animal is immediate and thorough wound care. Consultation with the Section of Epidemiology is available 24 hours a day to determine if rabies post-exposure prophylaxis should be administered. The decision to administer post-exposure prophylaxis is based upon several factors, including the geographic location of the incident and whether the animal had been provoked prior to biting a person. Epidemiology will ensure that appropriate medication is available. If required, animal bites should also be reported to the appropriate local authorities.

**2. Evaluate potentially rabid animals** - Following human exposure to a potentially rabid animal, the circumstances of the exposure need to be evaluated to decide if the animal should be submitted for rabies testing or placed in quarantine. If a person is bitten or scratched by a potentially rabid animal or by a dog (whether vaccinated or not), the animal should **never** be disposed of without prior consultation from animal control or public health officials. Epidemiology can facilitate the transport of specimens for testing to the State Virology Laboratory in Fairbanks.

**3. Vaccinate all dogs and cats** - Dogs and cats need to be appropriately vaccinated against rabies at the first opportunity after 12 weeks of age. The initial rabies vaccine given to an animal, regardless of age, must be followed by a booster dose 12 months later. Thereafter, rabies vaccine is given every 3 years. Animal rabies vaccine is available from private veterinarians, and in rural Alaska, from lay vaccinators.

The lay vaccinator program trains local personnel from public agencies or organizations to provide rabies vaccination services to communities without access to veterinary care. For more information about the program, contact Don Ritter, Manager, State Virology Laboratory (907-474-7017).

**4. Control stray and feral dogs** - Communities need to actively control stray and feral dogs. For example, communities could require that owned dogs be tied up or adequately confined, and that feral and un-owned dogs be captured and transported to animal control facilities. Such measures require a collaborative community effort to tailor a plan that meets the needs and resources of that community.

**5. Pre-exposure prophylaxis** - Rabies pre-exposure prophylaxis is indicated for persons among high risk groups such as veterinarians, animal control and wildlife workers, certain laboratory workers, and travelers spending 30 days or more in foreign countries with enzootic rabies. Vaccination is **not** indicated for the general population of Alaska or for persons residing in parts of the state where rabies is enzootic. Human rabies has never occurred among fox trappers in Alaska and routine vaccination of fox trappers is not recommended.

**Figure 1. Animal Rabies, by Community, 1998 - February 2000**



(Contributed by Louisa Castrodale, DVM, MPH, Michael Beller, MD, MPH, Section of Epidemiology, and Don Ritter, Manager, State Virology Laboratory.)