

## OUTBREAK OF CANINE DISTEMPER IN STRAY DOGS IN LANDER-RIVERTON AREA

March 27, 2004: The Wyoming State Veterinary Laboratory confirmed a diagnosis of canine distemper (CD) in an 8-month old unvaccinated dog from Lander. The dog presented with suggestive clinical signs of CD, including conjunctivitis, rhinitis, muscle fasciculations and neurological signs including ataxia. Findings at necropsy were of severe bilateral purulent conjunctivitis, hyperkeratosis of all foot pads, thymic atrophy, and pulmonary edema. Histological lesions were typical of CD, and included demyelination and malacia in cerebellum and brainstem, with typical CD inclusion bodies. The diagnosis was corroborated by positive fluorescent antibody staining, and the presence of typical nucleocapsids when samples were examined by electron microscopy. Attempted virus isolation is ongoing.

One of the veterinary clinics in Lander has seen 5 other dogs with similar clinical signs, although a diagnosis was not confirmed in these animals. The clinic reports that stray dogs on the Wind River Indian Reservation have signs of CD, and that some of these dogs are being shot to control the disease. A litter of puppies acquired in Riverton and transported to Cody developed clinical signs of CD. Samples from these animals are currently being tested for CD. The presence of neurological signs and history is strongly suggestive of the disease.

**The disease:** Canine distemper is a **highly contagious**, systemic, viral disease of dogs that occurs worldwide. It is relatively uncommon in Wyoming, but it does occur in wildlife and in unvaccinated or very young dogs. The disease is characterized by diphasic fever, leukopenia, gastrointestinal and respiratory catarrh, and frequently pneumonic and neurologic complications. CD occurs in *Canidae* (dogs and foxes), *Mustelidae* (eg, ferret, mink and skunk) and most *Procyonidae* (eg, raccoon). It occurs naturally in some free-ranging skunk and raccoon populations in Wyoming.

**Laboratory diagnosis:** In dogs with multisystemic signs, conjunctival, tracheal, vaginal or other epithelium, or the buffy coat of the blood can be examined by immunofluorescent assay, supplemented where appropriate by negative stain electron microscopy at the Wyoming State Veterinary Laboratory. These samples may be negative when the dog is showing only neurologic manifestations or when circulating antibody is present (or both). The diagnosis can then be made by serologic demonstration of virus-specific IgM or an increased ratio of CSF to serum virus-specific IgG. Post-mortem diagnosis requires submission to the WSVL of a wide range of fresh and fixed tissues, focusing on those tissues where the virus is likely to be found: brain, stomach, lung, kidney, bladder, conjunctiva and eye. The WSVL has a specific immunohistochemical test for use on formalin fixed tissues to confirm a diagnosis of CD.

**Treatment:** This is directed at limiting secondary bacterial invasion, supporting the fluid balance and overall well-being of the dog, and controlling nervous manifestations. Antibiotics, electrolyte solutions, protein hydrolysates, dietary supplements, antipyretics, nasal preparations, analgesics, and anticonvulsants can be used. No one treatment is specific or uniformly successful. Dogs may recover completely from systemic manifestations, but good nursing care is essential. Despite intensive care, some dogs do not make a recovery. Treatment for neurologic manifestations of distemper are unsuccessful. If the neurologic signs are progressive or severe, the owner should be appropriately advised.

**Control:** The most effective form of control is **VACCINATION**. Puppies are vaccinated with MLV vaccine when 6 weeks old, and at 2- to 4-week intervals until 16 weeks old. Measles virus is in the same family as canine distemper virus (CDV) and it can induce immunity to CDV in the presence of relatively high concentrations of maternal distemper antibody. An MLV measles vaccine and a combination MLV measles-MLV CDV vaccine is available. These vaccines must be administered intramuscularly. Pups 6-7 weeks old should receive the measles or combination vaccine and at least two additional doses of MLV distemper vaccine when 12-16 weeks old. Many varieties of attenuated distemper vaccine are available and should be used according to manufacturers' directions and with the advice of a veterinarian. Annual revaccination is suggested because of the breaks in neurologic distemper that can occur in stressed, diseased, or immunosuppressed dogs. On rare occasion commercial vaccines may induce iatrogenic CD.

Donal O'Toole  
Director, Wyoming State Veterinary Laboratory