Erie County Health Department
Vector and Pest Control Field Laboratory

2004-2005 Leptospirosis Survey and Report

21 Feb. 2006

Overview:

Leptospirosis is a bacterial disease associated with wild and domestic animals.

Many different kinds of animals carry the bacterium; while some may become sick many will have no symptoms. Leptospira organisms have been found in cattle, pigs, horses, dogs, rodents, and wild animals.

Animals and humans become infected through contact with water, food, or soil contaminated by urine from these infected animals. This may happen by swallowing contaminated food or water or through skin contact, especially with mucosal surfaces, such as the eyes or nose, or with broken skin. The disease is not known to be spread from person to person.

In humans it causes a wide range of symptoms, and some infected persons may have no symptoms at all. Symptoms of leptospirosis include high fever, severe headache, chills, muscle aches, and vomiting, and may include jaundice (yellow skin and eyes), red eyes, abdominal pain, diarrhea, or a rash. Many of these symptoms can be mistaken for other diseases. If the disease is not treated, the patient could develop kidney damage, meningitis (inflammation of the membrane around the brain and spinal cord), liver failure, and respiratory distress. In rare cases death occurs.

The incubation period is usually 10 days with a range of 4 to 19 days.

The disease is diagnosed using specific blood tests available through public health laboratories.

The antibiotics of choice are penicillin, streptomycin, tetracycline and erythromycin. Kidney dialysis may be necessary in some cases.

The disease has a seasonal incidence during the late spring, summer and fall, when the soil is moist and alkaline. Rainfall and higher temps seem to increase the number of cases in dogs.

Human:

According to the CDC the reported incidence of leptospirosis is 100–200 cases per year in the United States with most (50–100 cases) occurring outside the continental United States in Hawaii. Leptospirosis is likely under diagnosed in the United States, with reported incidence depending largely upon clinical index of suspicion.

New York State DOH reports 1 human leptospirosis case in 1994, 1996 and 1997 with 3 cases reported in 2000. More recent information is not available. None of the cases were in Erie County.

Animal:

Many articles and studies have been published in recent years indicating leptospirosis is a reemerging disease among dogs in the US and Canada. Cats are not known to be affected.

In a paper that was published in Ontario, Canada, documenting a large increase of canine leptospirosis in 2000, the following was stated: "The reasons may be the increased and endemic infection of urban wildlife (notably raccoons, skunks) with leptospirosis, combined with increased numbers of urban wildlife and an increasing index of suspicion by veterinarians, thus promoting serological testing. Although canine leptospirosis is recognized to have been increasing in Ontario in the last few years, the fall of 2000 saw a marked rise in the number of cases. A major factor was probably the wet and exceptionally warm late summer and fall, which provided conditions that were ideal for the transmission of *Leptospira* from wildlife." (Prescott et. al.)

A pharmaceutical firm conducted a survey in Erie County in 2002 and found 7 cases of canine leptospirosis. The survey was again conducted in 2003 and found 22 cases. These surveys may have been incomplete.

Results of the survey of small animal veterinary hospitals conducted by the Erie County Health Department in 2004 and 2005:

(The survey was conducted by phone and email.)

Erie County Health Department Leptospirosis Survey Results		
Number of:	**2004**	**2005**
Small Animal Vet Hospitals Participating (see note 1)	66	66
Canine Blood Samples Sent for Leptospirosis Testing	181	186
Cases Confirmed as Leptospirosis (see note 2 & 3)	60	48
Grippo Serovar Found	10	8
Pomona Serovar Found	10	7
Ictero Serovar Found	20	28
Canicola Serovar Found	3	5
Bravistlava Serovar Found	18	14
Automalus Serovar Found	18	12
Other Serovars Found (see Note 4)	2	2
Suspected Leptospirosis Cases Unconfirmed (see note 5)	14	20
Hospitals That Vaccinate All Canines For Leptospirosis (see note 6)	33	19
Hospitals That Vaccinate On a Case By Case Basis (see note 6)	23	37
Hospitals That Do Not Vaccinate For Leptospirosis (see note 7)	10	10

Note 1: All small animal hospitals surveyed in Erie County responded in 2004 and 2005.

Note 2: The testing for leptospirosis was preformed by seven laboratories: Cornell, Antech, Idexx, Priority, Vitatech, NYS Diagnostic and Vet Diagnostics.

Note 3: Laboratory confirmation of leptospirosis relies on indirect methods such as antibody detection. Scientific studies have demonstrated variable levels of sensitivity (30-80%) and specificity (80-90%) associated with the performance of these assays and are dependant upon stage of the infection, presence of cross-reacting antibodies, etc. Therefore, it must be assumed that a laboratory result for the diagnosis is not absolute and performance characteristics of the assay must be considered. Additionally, the diagnosis of the disease cannot rely on the laboratory result alone, but must incorporate clinical recognition, history, and other pertinent information.

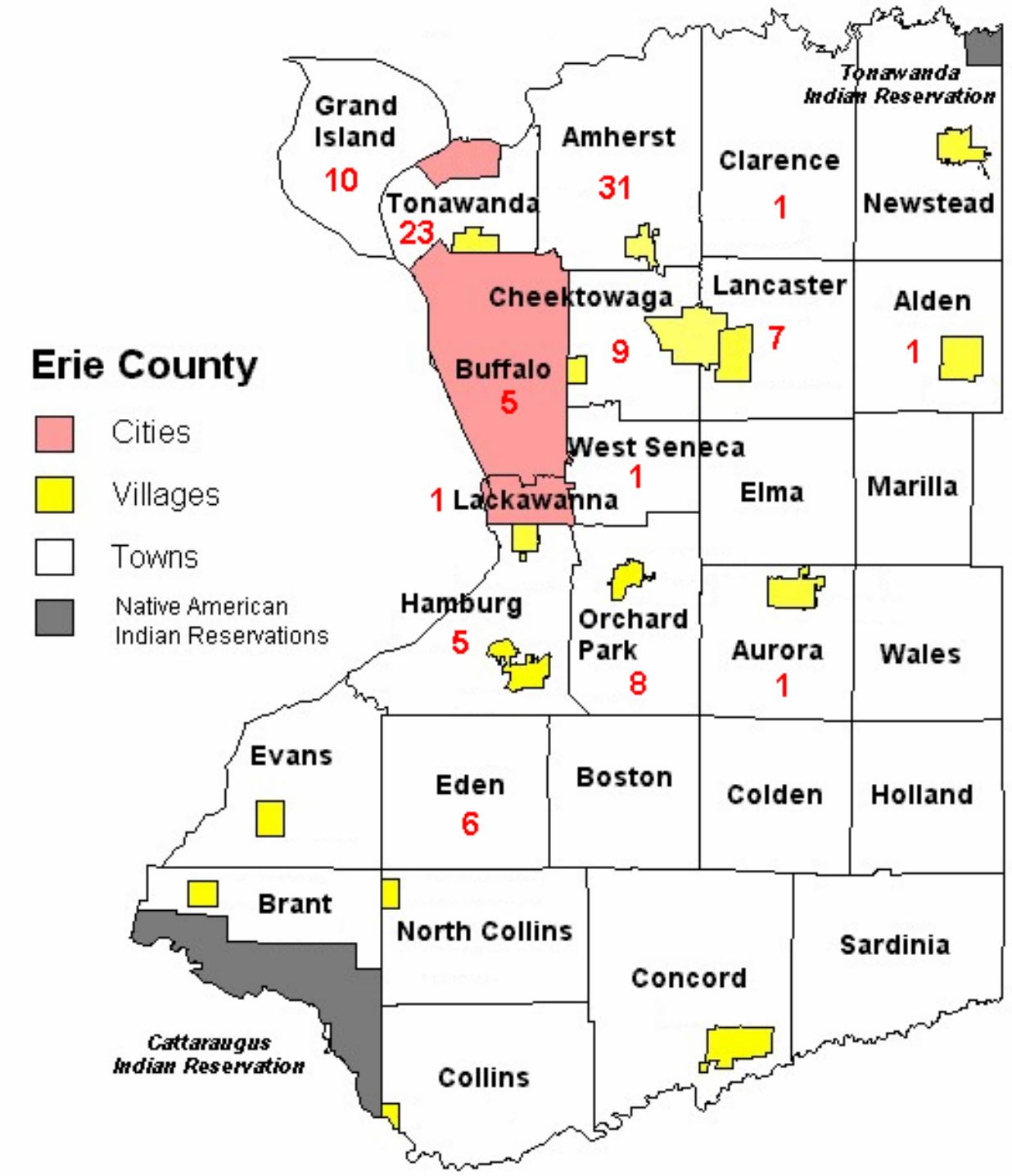
Note 4: In 2004 and 2005 one Hardjo and one unidentified serovar were found.

Note 5: In most cases if a dog was not tested it was because of a cost issue with the owner.

Note 6: The following leptospirosis vaccines are used by Vets in Erie County: Fort Dodge Duramune and LeptoVax, Pfizer, and Schering.

Note 7: Seven vet hospitals in Erie County do not vaccinate for leptospirosis, two do not treat dogs, one is an eye clinic, one is an emergency clinic, one is spay and neuter only, one is dermatology referral service and one is for internal medicine only.

Number of Laboratory Confirmed Canine Leptospirosis Cases in 2004 and 2005 by Township



Note: numbers based on locations of small animal veterinarian hospitals surveyed

Discussion:

National and local leptospirosis incidence data is not readily available.

Laboratory confirmed and diagnosed cases of canine leptospirosis appear to be on the rise in Erie County based on recent surveys of small animal veterinary hospitals. This may be the result of increased awareness and testing, two successive wetter than normal summers, increased numbers of urban wildlife and other unknown factors.

83 out of 160 leptospirosis serovars identified in the Erie County survey are included in currently available leptospirosis vaccine. Use of a canine leptospirosis vaccine may be indicated at least on a case-by-case basis. As canine leptospirosis appears to be more prevalent during summer and fall, it may be more important to protect dogs during this period.

Leptospirosis is infectious to humans; it is important for veterinary hospital personnel, Animal Control Officers, the SPCA wildlife rehabilitators and other wild animal handlers to take precautions to avoid possible infection. As a human illness leptospirosis is probably under diagnosed. Wearing gloves and avoiding contact with animal urine are advisable.

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