Our Experience with Leptospirosis

**Please note that this vaccination protocol is what we have decided to do after much research and discussion with several veterinarians and immunology experts. No vaccine protocol or lack thereof is without risk. We have made every effort to insure the accuracy of this information, provided "as is" with all faults and without warranty of any kind, expressed or implied. In no event shall the website owner be liable for any incidental or consequential damages, lost profits, or any indirect damages even if informed of the possibility thereof. In addition, advice should not be construed as veterinary advice, and any treatment of your own animals should be under the treatment of and after consultation with your regular veterinarian.

Unfortunately, we have had personal experience with leptospirosis infection. Our Elliot contracted lepto sometime in the fall of 2003. Thanks to the Internet and being made aware of the signs and symptoms (and lack thereof!) of lepto by others who had also had personal experience, I was able to quickly recognize that Elliot's odd, mysterious illness might very well be a leptospirosis infection. This knowledge probably save his life. After you read Elliot's experience, please check out the links below. I firmly believe that the key to survival of lepto is not leptospirosis vaccination, but leptospirosis awareness.

01/15/2004: I just wanted to put down to paper Elliot's (field-pointed Elliot Tanner's Light Touch CD, NAJ, CGC - 5 yo miniature Dachshund) results and experiences with Leptospirosis. First of all, I think we can never be reminded enough! It is because of other people sharing their experiences with this disease that I even knew that the renal failure indicated by Elliot's initial bloodwork could have been caused by a strain of Leptospirosis bacteria. Secondly, because lepto is considered "rare" in my area (Denver, Colorado), I think the possibility of lepto infection is often not given serious consideration by most veterinary professionals, even with the high number of dogs who travel to areas where lepto is endemic. This is not that surprising, since vets are taught to look for the horse first, not the zebra. I just wonder if lepto is more common than anyone realizes. Thirdly, because we show in agility, field, etc and train at a public facility, Elliot has literally been exposed to over one thousand dogs in the last three months. He could have contracted it anywhere, however, what I am most concerned with is that he might have shed the leptospires and another dog could be infected as a result.

It is not my goal to panic anyone...I only want people to be aware of the symptoms, the means of transmission and to realize the limitations of the vaccinations currently available.

There are many, many websites with information on Leptospirosis. My good friend, MaryAnne Teal, has put together a website listing links to more information about lepto than most people will ever want to know! :}
http://www.tealdachs.com/lepto.html

Three of my favorites are:

- http://www.vetmedpub.com/cp/pdf/roundtables/ftdodge.pdf  (a discussion from vets; not too technical, but very complete)

First of all, we have only been to three events in the past three months; the BDC Dachshund field trials in October in Roscoe, IL, the MADC Dachshund field trials in October in Roscoe, IL and the SCKC Agility Trial in November in Pueblo, CO (held in conjunction with the SCKC All-Breed Conformation and Obedience). Of course, that doesn't mean Elliot contracted this disease at any of those events, but he came into contact with many hundreds of dogs at these shows combined. My concern is that people who attended these events be extra-aware of the signs of leptospirosis due to the very real possibility of lepto shed in his urine.

Means of Transmission:

From "Leptospirosis in Dogs - Current Status" (Last Updated: 19-Jul-2001)

"Leptospirosis occurs worldwide; however, it is not uncommon to find endemic disease in a particular geographic region caused by infections with only one, or several, serovars. Leptospires become adapted to "primary reservoirs hosts"; which are commonly wildlife species. These same Leptospira species also occur in almost any other mammalian hosts as "incidental or accidental hosts". The dog is the "primary reservoir host" to L. canicola (L. canicola is found in the incidental hosts rats, raccoons, hedgehogs, voles and skunks) and to L. bataviae (L.bataviae occurs in the incidental hosts hedgehogs and voles). Dogs also may become infected with several other serovars and serve as "accidental or incidental hosts". Historically, the serovars associated with clinical disease in the dog included L. canicola and L. icterohaemorrhagiae (primary reservoir host is the rat; incidental hosts are mice, raccoon,
opossum, hedgehog, fox, woodchuck, skunks, and muskrats). However, the disease picture changed in the Northeastern USA when several hundred cases of leptospirosis were reported on Long Island, New York (USA) in 1996. Since that time, both L. grippotyphosa (primary reservoir host is the vole; incidental hosts are mice, rat, raccoon, opossum, fox, squirrel, skunk, hedgehog, muskrat, mole) and L. pomona (primary reservoir hosts are the cow and pig; incidental hosts are deer, mice, raccoon, opossum, hedgehog, fox, woodchuck, vole) have become more prevalent in that region. L. bratislava (primary reservoir in pig and horse) emerged in 2000 as an additional problem. The reported prevalence/incidence of leptospirosis in dogs may be underestimated, for it is likely that much canine disease is undiagnosed since many infections are asymptomatic. Also, many veterinarians have not included leptospirosis in the differential diagnosis of acute renal disease, or owners have not sought veterinary help. It should be recognized that seroconversion does not always correlate with overt clinical disease in the dog. Leptospires do not multiply outside of the host animal species, but they survive well in the environment under optimal conditions, as noted above. In order for direct infection to occur, dogs must be exposed to leptospires from infectious urine, via transplacental and venereal routes, bite wounds, or ingestion of contaminated meat. The most common source of leptospirosis in dogs is contaminated water. Indirect transmission also occurs from vegetation, soil, or food contaminated by infectious urine.

Dogs are very often carriers, as well. That fact should not be overlooked.

Vaccination:

Grippotyphosa, bratislava and pomona serovars are the most commonly seen infecting strains. The latest lepto vaccinations include grippotyphosa and pomona serovars in addition to the classic canicola and icterohaemorrhagiae serovars that are seldom seen in the infectious stage; probably due to vaccination. Currently, the bratislava, hardjo and autumnalis serovars are not included in available lepto vaccinations. So, just because your dog is vaccinated does not mean they are protected against all lepto strains. Also, there is controversy surrounding how long vaccinated or previously infected dogs are protected from infection from the disease.

Elliot was vaccinated for lepto as a pup, but only for the canicola and icterohaemorrhagiae serovars. He wasn't vaccinated after that because my vet at the time didn't routinely vaccinate for lepto, since it isn't prevalent in this area and because Dachshunds as a breed have been known to react to the lepto vaccine. I did not and do not vaccinate for lepto even now. Why? Two main reasons: 1) Lepto vax is a bacterial vaccine, not a viral one, and bacterial vaccines are next to worthless, IMO. Their duration of immunity is very short (6 months is felt to be the average), unlike vaccines against viruses, which have been proven to last years. and 2) There are literally *hundreds* of serovars (strains) of the leptospirosis bacteria, with some identified only recently, which indicates the bacteria might be mutating, which could mean more serovars, for which there is no vaccine, in the future.
I think a better defense against lepto than vaccination is awareness. Know the signs, which can be slight. If you have a sick or 'off' dog that presents with the beginnings of kidney or liver failure, titer for lepto and do a tick panel and treat the dog with fluids and penicillin (the only antibiotic that will kill lepto bacteria) while you wait for answers. My regular vet admits that she would have never thought of lepto if I hadn't brought it up.

Even when I did, she laughed at me and told me a lepto titer was a waste of $100 since there "isn't lepto in Colorado". I talked to the internal medicine specialist at Colorado Veterinary Specialists and he has personally seen 5 lepto cases in the last year (2003). He feels that there are probably many more as in the case of older dogs, it is very often misdx'd as simply age-related kidney failure.

**Signs of Lepto:**

From "Dog Owner's Guide"

"The severity of the disease can vary widely but it has the potential to be extremely severe, and in fact fatal," wrote Henry Boer DVM of Pioneer Valley Veterinary Hospital in western Massachusetts. "Symptoms are typical of kidney and liver disease, and can include, fever, loss of appetite, muscle pain, dehydration, vomiting, diarrhea and bleeding. Some dogs will have an increased water consumption and urine output while others may have a decreasing output of urine. Jaundice may occur, and the dog may be painful in the abdominal area or in the lower back. In extremely acute cases, a dog may suddenly go into shock and succumb."

Toss in fatigue, depression, gastrointestinal upset, difficulty breathing, the potential for meningitis and eye inflammation, and a picture of a diagnostic nightmare emerges. To further complicate matters, veterinarians are unlikely to suspect lepto in the early stages of the disease because the symptoms are variable and lepto caused by previously implicated strains has gone off the screen as a threat in most of the nation. Initial suspicions are often aroused by blood tests that show liver or kidney involvement..."
Dr Katharine Lunn, BVMS, MS, PhD, MRCVS, DACVIM of the Wisconsin Veterinary Referral Center in Waukesha, WI, says that case studies all suggest that "Acute renal failure is now the most commonly reported presentation" of lepto.

Elliot was a little off starting 12/22/03. He occasionally gets "dumpy", so we didn’t worry too much about it at first....I actually thought it was a muscle strain. He was ouchie in his loin area (hello, "kidneys"!), but I worked on him and thought he would be fine. On Christmas Eve, we realized he was *not* himself; he wouldn’t even come outside with encouragement and I knew by his growing toenails that he wasn’t digging, which is his normal occupation. However, he didn’t have a temperature, his color was good, he was eating, hydrated and had only a little diarrhea.

Christmas Day, he was much worse, vomiting his breakfast and having more and worse diarrhea and a fever of 103. He was still hydrated and drinking, color was good and he held down his next meal. We gave him a little bit of aspirin and the fever went away, never to return. The next day, 12/26/03, he was even more lethargic and had diarrhea. Color was still good but hydration was becoming an issue. My vet's office was not able to see me, so I was able to get into another clinic on 12/27/03.

We did a blood draw and the vet there postulated that Elliot might have salmonella poisoning. Results came back on 12/29/03. Elliot had elevated BUN (75 on a 7-25 scale), creatinine (2.4 on a 06-1.6 scale) and elevated liver enzymes in addition to *high* WBC and platelets....normally, *low* platelets are seen in active lepto infections. We did a urinalysis, which showed a mild bladder infection. Elliot was put on Baytril and sub-q fluids (150 mL 2x a day). When he didn’t improve in 48 hours (was actually worse, as the inappatence had begun), I insisted on penicillin therapy and a lepto titer & a tick panel. This was 12/31/03. He immediately improved, though he is still not anywhere near normal 9 days later. His BUN will likely be high for months, based on the experiences of others and his creatinine should be in the normal range in a couple of months. So, pretty much anything goes with Lepto symptoms. Rule of thumb is, if your dogs tests high for BUN and creatinine, start penicillin therapy while you are waiting for the lepto titer to come in. We were really set back because of the holiday, so thank goodness we started the penicillin when we did. Elliot is infected with the L. grippotyphosa serovar, but, since the serovars can cross-react, his titer test looked like this:

- **L. Canicola** - negative
- **L. Icterohaemorrhagiae** - negative
- **L. Grippotyphosa** - 1:6400
- **L. Hardjo** - negative
- **L. Pomona** - 1:800
- **L. Bratislava** - negative
- **L. Autumalis** - 1:1600
Even though the autumalis and pomona serovars cross-reacted, they are NOT cross-protective. So, Elliot will be protected against the grippotyphosa strain of lepto, but not against the other serovars.

**Ramifications of Lepto:**

The disease is not often fatal (10%), but if it goes too long before treatment, a dog can end up with chronic renal failure, chronic hepatitis or uveitis. Please also consider that many cases go undiagnosed, so the fatality rate may be much higher than the reported 10%.

**Required Reading!**

- Christie Keith's Lepto Article
- VeterinaryPartner.com - Leptospirosis