



## Treating Canine Distemper Virus Video Transcript

August 2012

*Dr. Ellen Jefferson:* Thank you. We are going to start with distemper and this one, I think, is probably going to be a little longer than 30 minutes. I'll try to go fast through parvo [virus] since we have already covered that a little bit through the Boulder program – which is great. Also you have a lot of information in your handouts from our program and the Boulder program for parvo.

In Austin, we had a distemper outbreak in the spring of 2010. We treated over 200 cases of suspected distemper. We did not test distemper when we got the animals in our shelter. Some of them were tested at the city shelter before they came to us, or before they were euthanized, so we knew we were dealing with a distemper problem, but we didn't test every single dog. I'm just throwing that out there because it definitely – these are assumptions. As we worked through our dogs that we thought had distemper, we found that not all of them got neurological signs. In fact, a large portion of them did not get neurological signs. If they didn't [get neurological signs] they had about a 90% save rate, if they were over 8 weeks. There are a lot of "ifs" in there. Younger puppies have a much harder time if they get plain old pneumonia, the horrible KCS

(keratoconjunctivitis sicca) and respiratory, but [if there are] no neuro [logical] signs, then we had a pretty good success rate of treating them and getting them through it. If they developed the neurological signs then there seemed to be a higher mortality associated with them. The dogs over four months of age – age had a huge part of this. I am sure that if we did titer testing – we didn't do titer testing – but I'm sure if we did titer testing, we would [have] seen that it may just be titers, not necessarily age. Those probably go hand in hand, but the older puppies had a better save rate.

So why bother? That's a good question, because this is a horrible disease and when it goes through shelters, it wipes out a lot of dogs and it is really difficult to treat. What we were trying to do is save the difficult animals. We felt like, "Well, we've got to try to save these dogs." Especially, because we were seeing that a lot of them were savable, that they were living through it, we felt like we needed to tackle it and try to deal with it. It is a shelter disease. These dogs that made it out of the shelter alive in the first place were then dying of a shelter disease. The tragedy of it is overwhelming, too. Again, that was another reason why we wanted to tackle it – to give these guys a chance. They already made it through the gauntlet and then to just die of something that they picked up at the shelter is really sad. It takes a long time to fully manifest. I am sure people already know that, if anybody's seen it. Many puppies are already adopted by the time they come down with full-blown symptoms, because

we don't necessarily do a quarantine period for our puppies in the summertime when we don't have a lot of [resources]. We can't keep up with the numbers that are coming in. So, if they get it, then we treat it. If they are adopted or they're in foster [care] we deal with it.

You guys already know this – it is spread through respiratory droplets, up to four feet away of coughing. You can spread it by having dirty hands, going from one cage to another. It doesn't live very long in the environment, so it's actually harder to spread than parvo, as far as, for instance, on your shoes or puppies licking your clothes. But, it is spread through air. That makes it much harder, especially when you're dealing with crowded environments and shelters that don't have the greatest paths to get through the shelter.

Symptoms. It attacks each organ. I like to think of it as a disease that rolls through a different organ system every week. It's like the flavor of the week. Whatever the distemper decides to get, it gets. Generally we see it start with the respiratory symptom and/or diarrhea. Then that will wax and wane. Then it'll be back and you'll start to see them improve from that first symptom. Then something else pops up. And, that might be skin problems. We've seen a couple cases of really horrible yeast infections all over their entire body. You can see KCS in which the eyes stop producing tears and conjunctivitis, of course, is pretty common.

Those dogs that just won't open their eyes – I used to think it was all conjunctivitis, and it is probably KCS induced by conjunctivitis – they aren't producing tears. We will talk about treatment in a second. We also see diarrhea. A lot of times it's bloody. These dogs are often mistaken as parvo positives even though the test is negative. So, they come to us and the shelter might say, "We think he/she has parvo because of the bloody diarrhea, but the test is negative." Then we put him/her in a semi-quarantine, do another test in 24 hours. If it is still negative, then distemper pops up to the top of the list, if we've already started anti-diarrheal and anti-parasitical treatments.

Waxing and waning symptoms: up and down fever, dry eye, tics, tremors and seizures. We see night terrors, where some of these dogs are vocalizing at night in their sleep. They might even wake themselves up and run against the wall or run into the wall. [It is] really strange behavior, but we have seen several cases of that.

Uncommon but deadly signs: when they can't swallow. They get a mega esophagus problem, where their esophagus just stops working. If they can't control their breathing. We have seen several cases where dogs – it's a really weird symptom – they won't open their mouths to pant, but they can't get air, so they're [having] labored breathing. Their gums are going in and out, but they can't, they won't open their mouth. Those are

obviously deadly, because they are not moving oxygen. If they can't swallow, they can't eat. We have decided, like our feline leukemia, [that] we are not going to go through placing esophageal tubes or peg tubes for dogs that can't swallow. We will force feed and we'll do a lot of supportive care.

Enamel hypoplasia. I've seen several dogs come into the shelter with enamel hypoplasia, and sometimes tremors, and they're not active distemper. If you see the enamel change on an incoming animal, that's a dog that you can put into your program, because the disease is long gone. That is a remnant from when the disease was there and present. They shouldn't be contagious anymore.

Diagnosis. It's not easy. There is a PCR test and titer testing. We have started doing some PCR testing with the help of Dr. Levy You can see at the bottom [that] we tested a sample of 12 dogs. Most of those represented litters of dogs, so that was a pretty big sample pool. One was negative. This dog had seizures. He came in to us with bloody diarrhea and seizures. He was a two pound, some sort of, terrier mix. We always treat symptomatically. So, we started him on dextrose and phenobarbital, and then parvo treatment even though he tested negative for parvo. He actually came out of it in seven days. We don't know what his problem was, but apparently it was not distemper. The two negatives – I don't

believe that they were actually negative because littermates from those two dogs died of symptoms that are consistent with distemper. I don't know if maybe those dogs just weren't shedding, or if the test just gave us a false negative, or really is negative and I just can't think of any other disease that would cause the symptoms of trembling and seizures with waxing and waning upper respiratory infection. One of them maybe, but the other one definitely not. And then nine positives. The reason that I like that is that it helps to support that what we we're seeing is what we think we're seeing when we're making these assumptions.

Prevention. Vaccinate before intake. That is the most important. I know we talked about it yesterday, but I'm going to beat you up a little bit with some slides on it because it's the most important thing that you can do. Distemper is a man-made problem. We don't like to think that it happens in our shelters, but it does. And it is devastating. [Prevention tips:] separating dogs, trying to do some isolation when they come in, and quarantine, keeping them at least four feet away, not sharing water bowls unless they come in together. Obviously, if we all had the money to put in great ventilation systems that would help a lot with distemper. But, we don't and I think that we just have to follow the things above. Vaccinating before intake is the very most important thing that you can possibly do because of its ability to stop this virus. It's a very easy virus to prevent. I

think that is something that we forget. It is so easy to prevent and it is really hard to treat.

The importance of intake vaccines. This is a sample of the dogs. Again, none of these were tested. We treated 76 during the outbreak. Thirteen of those died, and that was out of 480 that we took in total. That number is just through the month, so you can see that huge spike in April. The vaccine guidelines – this is important, and I bolded the part that is really important. This came from AAHA and, “It is strongly recommended that immediate vaccination on entry be made a priority in all shelters. Delaying vaccination, even by a few hours, may increase the risk of infection subsequent to exposure.” That is directed at distemper. This is a disease that we can prevent if we can just get on top of those vaccines. I’ve worked with two shelters that swore they were giving the vaccines before intake, and when the procedures were actually observed, they weren’t. There were huge gaps. Some of the animals were getting vaccinated on intake and some weren’t. I like the words “before intake” not “on intake,” because that is a specific time. Do it in the lobby. Do it before they even walk through the doors to go into the kennels.

We got the data from our city shelter of what was going on. Again, we were told everybody was getting vaccinated. We knew they weren’t getting vaccinated and we knew the ones that were getting sick were also

in that group that wasn't vaccinated. There was a huge discrepancy. This isn't to beat up our city shelter. I think that this is a problem in all large shelters. Sometimes the right hand doesn't know what the left hand is doing, and even if you have a protocol in place it doesn't mean that it's being followed. There needs to be follow-through to make sure that somebody, especially the veterinarian, is in charge of ensuring that it's occurring 100% of the time. This [shows]the total animals taken into our city shelter. You can see that 37% received vaccines late or never and 63% received vaccines on time. We don't know the time they were given, that's just same day. "On time" for us means same day. I am going back to the slide before that. There is a higher prevalence in the ones that we got that were sick, because we were taking the bottom of the barrel that did not get vaccines. It makes up a higher percentage of the ones we got, not the total population at the shelter. Hopefully that makes sense. I am kind of confusing it.

These are just some examples, and it shows the timeline of the disease and how long it takes to cause problems. This little adorable dog on the left, he was not vaccinated because he was an aggressive small breed dog. He was there for 14 days with no vaccines and then we pulled him. He got adopted immediately and he was euthanized a few weeks after the fact, because it took that long. That is a month and a half, or a little bit over a month, for the disease to become fulminant and kill him. That is one

reason I think that large shelters don't even realize the importance of vaccines, because they don't see the aftermath. The animals – if there's a high percentage that are dying then you may never even know what you're spreading in your shelter because they don't make it out. So of the ones that do – again, the bottom of the barrel are the ones that are in the bottom of the 50% that have the higher percentage of not being vaccinated. You don't even know the harm that it's causing, because they previously aren't making it out. Pedro, on the right, was vaccinated. He died two weeks after he came into the shelter, but he sat there for four days with no vaccines. Finally, this little puppy came into the shelter. He was vaccinated one day late – his entire litter. They all underwent treatment and they all survived, but it was a huge amount of work.

Distemper. No excuse for not vaccinating before intake. It's hard, really hard to ensure that it is happening, but I hope that you're getting it. I'm sure that most people in this room are already aware of the importance of it, but it is the most important I think we can do as shelter veterinarians to make sure that nothing harmful happens while on our watch. One hundred percent of the animals have to be vaccinated to prevent an epidemic. I liked what one of the speakers yesterday said – unless the animal is leaving again, back through the front door, it gets a vaccine, even if it's dying. I mean, unless you are taking it directly to be euthanized, and even in the case in San Antonio, we'll take animals from the euthanasia list that

are sitting in the euthanasia room and guess what, they're lined up next to a whole bunch of animals that have distemper. If the vaccine is given to everybody, no matter what their outcome – and in most of these big shelters there's actually funding for that, it's just follow-through to make sure that it actually happens. It may not make sense to the person who doesn't do it. But what if someone like us comes on the back end and says, "Well, we'll take that little puppy and give it a try?" But, like I said, he has already been exposed to a whole bunch of bad stuff.

They work immediately. Even though they are not 100% protective, if they have just a little bit of immunity, that could prevent the fulminant disease. I think that one reason why we saw so much pneumonia, and not the full-on neuro signs, is because a lot of these animals were vaccinated, hopefully, before they came into contact with the virus.

The treatment is waiting it out. It's a waiting game. You just have to react every time it acts. It chooses what it wants to do; it chooses which organ system it is going to ravage. It chooses how long and you just have to wait it out. If you can wait it out for two to three months, typically, then you win. If the dog survives you win. So treating the symptoms – time, two to three months is a really long time. You know these dogs can't be in the shelter. Obviously they have a communicable disease, so they need to be in a foster home, providing supportive care and informing

your fosters of what this means. We don't do surgery if we think that they might have distemper, even it means we have to adopt them out and then have them come back for surgery, because the stress of surgery on their immune system. If we think it's gone, and then we do surgery and then it pops back up three days after the surgery, then we have just undone all the good that we were trying to get accomplished in the first three months of treatment.

Systemic steroids. For some reason it is out there in the literature. Some people use steroids and I just would caution against it because you don't want to immunocompromise them any further than they're already compromised. We do use a lot of non-steroidal anti-inflammatories which are really helpful, but I would not use prednisone.

Okay, so lowered immune system. We often see parvo with distemper. It causes susceptibility to other infections, which is why you're using antibiotics. It's a virus, we all know that. But, they get secondary bacterial infections that are really terrible. It is critical that they are on antibiotics the whole time.

[It is a] long course of treatment, and we just take it one day at a time.

That is what we tell fosters, that every single day we'll reassess. If we're having a particularly bad day, then we'll talk about it and see where we are. If the foster is not willing to continue, then we don't. If they are

[willing,] then we just keep going. Every day you get a little bit further down the line of the two to three month time period.

I adopted one of our first distemper puppies, and she had terrible bronchiectasis and chronic pneumonia. She only lived a year. It's horrible, horrible, horrible. I did a lot of research on what we should be doing for antibiotics and talking to specialists. I was surprised to learn that there are only two antibiotics that really dig down deep into the lung tissue. [Those are] Baytril and Zithromax. For dogs that have pneumonia, those are our go-to drugs. If they don't have fulminant pneumonia, we'll use Doxycycline or Clavamox. You know a lot of the other standard antibiotics, but these are the two that are going to penetrate down deep and hopefully prevent bronchiectasis from being the end result after the pneumonia is done. Often we have to use both, because they will spike a fever even while they're on, and we don't know if it's the virus or more bacteria. We don't have the money to do a bunch of cultures, so we are treating empirically, which I know is not the greatest but it works.

And then supportive care. I would not recommend using one of those little boxes, but it's the only picture I could find of a nebulizer. We have around 40 nebulizers in our stock at Austin Pets Alive! and we lend them out to different fosters. When we're having terrible upper respiratory in cats, the cat people will get nebulizers and nebulizing solution. Then when

the distemper happened a lot of our fosters would have the nebulizers, and that just makes it easier for the animal to get treatment without a huge cost. Also, it's something, because it's like a capital cost. It is donor friendly. You can get people to help buy those for you because it's something that will stay in the organization forever, unless people don't return (which does happen). But, you want them back. We usually use a small crate and cover it with a sheet or a blanket and then run the nebulizer. You just have to make sure they don't get too hot.

Treating the GI symptoms. Deworming – making sure they've gotten rid of all the parasites, because again, they are immunocompromised. If somebody else is eating their nutrients and sucking away their life force, we want to stop that. Having them on a dewormer, a broad spectrum dewormer – maybe we'll do all the dewormers because sometimes you don't even see coccidia on a fecal slide. If they are having diarrhea we throw the whole book at them. We do fluids. Keep them hydrated.

Generally the diarrhea is quick, in and out. We don't see a ton of it staying there for weeks and weeks. It might come back. For instance, they will have seven days of diarrhea, then a few days off and then it comes back, but then it's typically done. Whereas the respiratory can come up and down, up and down, up and down five or six times. [For] vomiting and not eating, we just treat symptomatically – Reglan, Pepcid, force feeding, trying different foods. A lot of these dogs do not want to eat

because the last thing they ate made them feel nauseous. You have to mix it up a little bit. Our mantra is, “We don’t care what it is, just as long as they’re eating something.” Then we’re continuing on the path of just getting through it. That is why all these human foods are on here.

Treatment for conjunctivitis. In KCS we don’t use steroids. BNP is good; it is a great eye antibiotic for dogs. Artificial tears – if you think it is KCS, which I think a lot of them are. Cyclosporine – we get a lot of it donated, because a lot of elderly animals die and then people bring their meds over to us; their owners do. We keep that like it is gold because we can’t afford to buy it. Then we parcel out little tiny – we break it up so people get little tiny pieces of it. It typically goes away also pretty quickly, [within] 7-14 days. It’s not a permanent condition, unless there’s scarring to the eye from the problem.

Treatment for skin. They get skin problems. If they are already on antibiotics, we typically don’t worry about it. Just treat them symptomatically [with] oatmeal baths, cortisone cream, stuff like that.

Tremors and tics. There’s no treatment available for tics. I read a study about botox being used. I would love to see that actually put into practice, but we have not used it yet. A lot of times it seems like the tics come from really central nerves. I’m not sure how you’d get it in there, but it’s an

interesting thought. The only thing that stops it is general anesthesia, so there's no point in trying. I guess the point of that is there's no point in trying to find a miracle drug that is going to stop it. There's not anything out there. The Gabapentin (Neurontin) helps with pain. It seems a lot of times they experience pain, especially at the beginning of tremors. It's something that they acclimate to. If they go away, which is our hope, then it's worth it. But putting them on NSAIDS (Nonsteroidal Anti-inflammatory Drugs) and Gabapentin seem to be a good mix. The tics that Dr. Schaal, who's a neurologist, [spoke of] – she said that there's nothing else that causes those tics that you see that are methodical jerking. For us, if they do develop that neurological sign, then it sounds like we can bet that that's definitely distemper.

Treatment for seizures. We use Phenobarbital. We do a huge loading dose on day one. We don't send Valium home with people or IV phenobarbital. We just do a huge oral loading dose. For the most part that stops the seizures. Then we do a daily dose after that. Typically they stop seizing in 7-10 days. Sometimes they never seize again. Once we load them up and keep them on it for 7-10 days, then wean them off. We use Keppra; it's not controlled. That's a great drug because you can order it and keep it in your pharmacy. If you have vet techs helping you prescribe the stuff, you don't have to keep track of it, which is awesome. Again, load them up at the higher dose, and you can go a lot higher than that too.

Zonisamide is also not controlled, and that's a good one. It's important; the minute somebody reports a seizure, just start them on it. There's no reason to wait until they go into cluster seizures, or back to back seizing. Just start it immediately.

Supportive care. Vitamin C, puppy vitamins. Every puppy, every dog, gets on vitamins. We do Acepromazine (Ace). This is one that, I don't know why it helps. The last distemper puppy I was fostering, he was having the night terrors and the Ace really helped him sleep through the night. I don't know why it helps, but it does. It obviously makes them sleepy, but there are so many other drugs in this cocktail that he should be sleepy from. I don't know why Ace did the trick. And high protein diet, immune support – those can't hurt and they might help.

Newcastle vaccine. This is something that is obviously hugely controversial. There's zero really good evidence to prove that it's helpful in any way, shape or form. We started using it because we felt like when we were having the outbreak and we had so many people invested in these animals, so many fosters invested in each individual, the fosters always find it. They always find it on the internet. So, we were just like, "Alright fine, if you get some we'll try it because we don't know what our success rate on saving these dogs is anyway, why not try it?" What we found is that it's not dangerous; we have had zero side effects from it. I don't think

it helps, but interestingly 24 hours after we give it IV, they seem to be better. I don't know if it is just the stimulation of coming to the vet clinic and getting a shot, or if it's truly related to the Newcastle [vaccination]. It definitely doesn't have any long lasting effects that I can tell. Of course, some of these animals made it, and it could be because of the Newcastle, but I don't think so. We do the IV. We have done the serum, I think, on a couple of dogs but not since then. There is somebody in Austin that does the spinal injection. We sent five dogs there. They were all funded through ChipIns, and three of them survived. Again, I don't know if it was related to that or not.

Isolation. They need to be in foster homes or someplace really far away from other dogs. Ozzy's Team is a group. This little dog had distemper and there were a group of people that shared custody of him while he was going through his treatment. Ultimately he didn't make it, but they did tons of research. They wrote up a whole bunch of stuff for people to take care of other dogs. They developed a support group so that if our other fosters were going through it – because it's such a drain, an emotional drain – [they would have] some people to just talk it through and be like, “Oh, have you tried this?” and “What about this recipe for food?” It's nice to have that. I think that any city could do that. Anybody who has nursed a dog through distemper becomes the expert, and then you can get them to mentor new people.

These are the reasons that we'll go ahead and euthanize. One is [when] they can't swallow. We've already talked about that. We need to make sure that it is not because they are too sleepy to swallow, or because of drugs or that it's vomiting or not wanting to eat, but that they're actually trying to eat and they can't get it down. It keeps falling out of the side of their mouth or he/she regurgitates it right back up. It is kind of that classic trying to tell the difference between vomiting and regurgitation. If they can't breathe, as long as we've had them on strong antibiotics – we've had a few cases where the foster [caregiver] didn't show up for their refill and 48 hours later the dog is in extreme respiratory distress. We don't euthanize for that; we put them on oxygen. Before we had oxygen tanks we would nebulize 24/7 and start them on IV Baytril. They actually came out of it. They started breathing better within 24 hours. So, if it is because of a lapse of antibiotics, that's not a good reason to euthanize. If you're already doing all the antibiotics and they still can't breathe, obviously the humane thing is to not make them keep trying. If they can't move at all – we have had some puppies that are completely paralyzed, and we decide to call it at that point. If they can't stop seizing despite medication [we euthanize]. Also, if the caretaker says they just can't deal with it anymore. It's not like we have distemper caretakers lying around that want to take on one of these dogs. If they've had enough, then it's okay to euthanize, of course.

General course of treatment is a couple of months. Our job is to outlast it. You can pretty much bank on it being gone for good if you have had no symptoms within 10-14 days. If you see your last new symptom, or last recurrent symptom, and then you wait another 10-14 days, you can pretty much assume you're done. Even if you still have tremors – or something that is continuing that is a longer lasting problem – as long as there's no new problem or worsening of an old problem, then that seems to be the end of it. The seizures don't appear to be long-term, which is something that I'd always thought was the case. We have had zero of these dogs go on to have long-term seizures. The tics do continue for a long time. I have a dog that I adopted ten years ago with distemper, and she had whole body twitches. We really didn't know if we should euthanize her or keep her alive, because we couldn't see how she could possibly sleep. But, she kept eating; she kept playing, so we were like, "Okay, we'll just keep going." After three years her tics stopped altogether. She has had no tics for the last seven years, which I don't understand at all because I thought that neurological progress ends at about a six month mark. So, like I said, where there's life, there's hope. The eyes, if they're not treated appropriately you can lose eyes. Cataracts. We have had one dog develop cataracts after the fact, and I found an article that said that cataracts can be post-distemper. Enamel hypoplasia is to be expected.

How long [is it] contagious? I don't know. I don't think anybody really knows. I would assume that because this is a respiratory virus and an excretion virus, that diarrhea and coughing would be your major sources of spread. If those symptoms are gone, and gone for good, then probably it's not contagious. I certainly wouldn't try it with an unvaccinated dog around.

This is a case study. This is a dog named Reba that was at the shelter. She came in hit by a car. Her leg was broken. She was there for her three day stray hold and she didn't get vaccinated because of her fracture. We pulled her out – like most of our fractures it's not that big of a deal, so we'll take her. The day we pulled her out she had a 104° fever, and she started to develop sniffles right after the fact. This was at the beginning of our outbreak, so we didn't even know that that was what was wrong with her. She was over sniffles by the time we sent her for surgery for an FHO (femoral head ostectomy). This is another good reason to wait on your FHO. It is a salvage procedure, and if there's any chance at all that that dog's incubating distemper there's no reason to make them go through surgery early. The day of surgery she developed an eye infection. We were kind of like, "Well, that's weird," but we didn't really pay much attention to it. [We] sent her to surgery. She became weak and wobbly after surgery. Her eye infection got a lot worse, and then she became really paranoid. This is a super friendly dog and her behavior changed

where she was just alarmed by things that were happening around her. She was scared of her foster. And we were like, “Okay, this is starting to look more like distemper.” We started the Newcastle vaccine. We started her on anti-seizure medicine and oral antibiotics because her upper respiratory symptoms were back but they weren’t severe. Her fever continued to stay up. We started her on a second antibiotic. She became paralyzed in her back end and she was on these other medications to help deal with symptoms.

I couldn’t get the video to load, but this is a picture of her. You can see her left eye is bulbous and really irritated from the KCS. It was dead at this point. Her back end is paralyzed but she’s walking around the yard. She would go through these awake seizures. This is one of the only dogs I’ve ever been bitten by. When the foster went out of town I’d take care of her. She would be in the yard and she would just run towards you. I kept running away and then she would stop. But, then I was like, “Well, I wonder if she just wants comfort?” So, I just stood there and she bit me right on the butt. *[Audience laughter]* So I think she was having some weird seizure activity and they’re not in their right head, at all.

Okay, so the paralysis continued. This is of course, a bad – well, all distemper’s bad – but this is kind of the worst it gets with the neurological symptoms. Paralysis continued. The foster noticed light movement in one

rear leg about a month after she became paralyzed. Her eye infection continued, but we decided we were not going to do surgery on that eye no matter what. We didn't want to decrease her immune system. She wasn't spayed yet. She was heartworm positive. She had a lot of things that she was supposed to get done that we were just like, "Forget it, let's just see if she lives first and then we'll deal with those problems later." Her seizures were under control for the most part, except for that weird activity. We started her going to physical therapy and then we had a physical therapist give us a really good deal. We were able to raise money for her through a ChipIn. And here's a video of her at physical therapy. *[Video Clip]* It's amazing. Her legs are all beat up from dragging, but she started actually getting motor function, which is unbelievable. We kept going, but you know, the question is, "Why did we keep going?" Again, every day this dog would eat and you're just like, "When she gets to the point we would talk." The foster [caregiver] and I would talk, and when she gets to the point where she doesn't feel like eating, then that's when we need to call it. She just kept eating. Every day, she kept eating. It was something different every day, but she did keep eating.

Her legs continued; she can walk on all four [legs]. Her improvement continued; she can walk on all four legs now. We were finally able to do her spay three months after she got the disease, and her heartworm treatment after that. This is a video of her now, which is awesome.

*[Video Clip]* It's the outcome you hope for when you go through that much pain and suffering and they go through that much pain and suffering. She's not normal, but she's pretty close!

*[End of audio]*