

Wolf River Veterinary Clinic NEWSLETTER

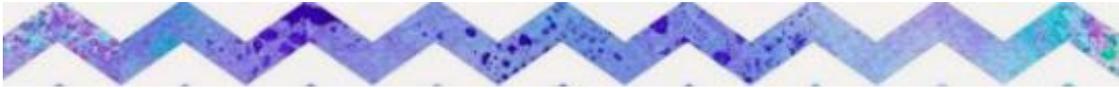


2018

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Promises

Dr. Ziegler

I saw an advertisement recently for a brand of pet food. A picture of a bag of the food had the words, “Life enhancing formula” on the label. Wow! I almost wanted to eat it myself. Not being a complete fool, I realized that this is a marketing strategy versus a promise.

In health care, there are not a lot of promises that I can make. I can promise that if I spay your pet, it will not get pregnant. If I neuter your pet, it will not breed. If I euthanize your pet, it will cease to live. Outside of that, there is very little that I can promise. This makes life tough, because most clients would prefer promises.

So much of what we do is uncertain. A fully vaccinated pet can still get the disease it was vaccinated for (look at this year’s influenza scenario on the human side). A surgically removed tumor might re-grow. An orthopedic surgery may or may not make the pet better off. All anesthesia is not safe. The list goes on and on. There is very little written in stone with health care. We can issue assurances, but very few promises.

Because of this, we often quote statistics such as 95% of vaccinated pets will be protected, 90% of the pets undergoing this surgery will have a good outcome, the survival times on average for this type of cancer is... and so on. I always hate reducing a pet and its condition to a statistic, but there is no other choice. I would like to give every client a written guarantee that the outcome of their pet’s treatment will be ideal, but to do so would be considered unethical and just plain wrong. In a day when everything is under warranty or has a money back guarantee, health care is exempt.

It is very important for clients to appreciate this reality. I often refer to the unpredictability of a biological entity. Any living thing can or cannot behave the way it is supposed to. The bell curve means that most will follow the rules, but some will not. As veterinarians, we do our absolute best to make sure that what we do results in the most predictable outcome possible, but there are the occasional cure balls.



I personally believe that veterinarians represent one of the most dedicated groups of professionals out there. They are dedicated to their work, and they are committed to their patients and clients. Someone once told me that veterinarians are far more committed to their clients than their clients ever will be to them. I have seen it happen often. We are a sincere group.

So even though we cannot promise a lot, we can promise that we will care, and we will work hard for you and your pet, and we will keep the best interest of both the pet and the owner as our top priority.

With a promise like that, what else could you hope for?



My Best Chance

Shaunna Ferge

I remember the day like it was yesterday. A beautiful summer morning, waking up to the words “You better get down to the barn, someone’s waiting for you!” I whipped the covers off and flew out of bed faster than ever before. I ran down to the barn barefoot, and there he was...my Chance.

Let me start from the beginning. I have been extremely blessed with the privilege of growing up on a wonderful horse farm. My childhood dream of owning a horse was surpassed with the opportunity of owning and showing many different horses. When I hit middle school age, I begged my mother to let me raise a foal. I always wanted to care for a baby horse and train it and watch it grow. Almost every day I would annoy my parents, “Please let me have a baby horse! Please!” I guess all my nagging finally paid off because in the summer of 2001, my mom finally gave in. A family friend of ours had just purchased a beautiful Andalusian stud and we decided to try breeding our Arabian mare.

We were definitely not very scientific or professional when it came to our breeding effort. We took our mare “Indy” over to our friend’s horse farm when she came into heat and simply left her alone with the stud for 2 weeks. “We are going to let nature take over, and if she doesn’t get pregnant it wasn’t meant to be.” Not the best words of encouragement I wanted to hear from my mom at a time like this, but I was confident I was going to get the foal I always dreamed of.

Months went by, and the winter seemed to drag on forever that year. I just wanted to know if Indy was pregnant and if I was going to get my foal! She didn’t seem to be gaining any weight and things weren’t looking very promising. We never had a vet palpate or ultrasound her and when early spring came, it was not obvious that she had conceived. It wasn’t until about June we had started to notice that she was gaining some weight and it looked as if her udder was starting to expand and finally her milk started to come in. Things were starting to look up for me and I was getting very excited for the big day!



My mom had to gently remind me that “nature isn’t always kind, and we need to be prepared if things don’t go as we are hoping.” I understood what she meant. Indy could have complications with her delivery, or the baby may not be fully developed or healthy. Since we did not have any veterinary intervention we could not be certain that everything was going to go smoothly, and the foal would be healthy. I tried not to think about the negatives. I was ready. But when?

I’m certain running down to the barn on that July morning was the fastest I’ve ever ran in my life. I jumped over the gate and searched. Where was the foal? I didn’t see anything. I looked past the barn and could see the tall grass starting to move, and slowly a small little brown head started to emerge from the grass. There he was. He was the most beautiful thing I had ever seen. Such a miracle. My chance for a foal came true and that’s how he got his name.

Chance lived a great life on our horse farm and I spent 15 years with him, training him and watching him grow. But that’s a whole other story. He is a miracle that I will never forget and will always cherish. I finally got my Chance.



Lumps, Bumps, Tumors, and Cancer

Dr. Ziegler

One of the most common presentations at a clinic is a client who wishes to have an abnormal lump evaluated (abnormal meaning that it is a new finding). These lumps are typically involving the skin, or the sub-cutaneous tissues (those areas just below the skin) since these are the ones most obvious to pet owners.

Every client wanting to have a lump evaluated is concerned for cancer. Cancer meaning, in most people's minds, something that will negatively affect their pet's health or longevity. We are fortunate that most lumps are either benign, or can be resolved surgically, and few represent metastatic disease (cancer cells that will travel throughout the body). But we do not know unless we check.



When a pet presents with a growth to be evaluated, the first thing is to establish a history. We need to know the location of the growth, how long it has been present, if it has changed over time, and if it is influencing the pet's wellbeing. After a history is obtained, a complete physical exam is performed. The growth is evaluated for size, shape, location, texture, etc. The next step is to perform what is called a FNA- a Fine Needle Aspirate of the growth. A small needle is inserted into the growth, cells are aspirated with a syringe, and the sample is studied in the clinic or sent to a pathologist if results are inconclusive.

The goal in all of this is to determine what the growth is and what the outcome should be. Can the growth be left alone? Should it be surgically removed? Or are there other considerations for the health of the pet? (This would usually mean chemotherapy, or even possibly a referral for radiation therapy).

We are very fortunate in that most of the lumps and bumps we evaluate are either benign and need no treatment, or they are completely resolved with surgical removal. There are always the off cases though, where consults turn into discussions of chemotherapy, amputation, referral, life expectancy, etc.... That is the way of it. This is biology.

I can remember a recent case in which a dog presented with a lump that ended up being a benign fatty tumor, which is very common in middle-aged to older dogs. The entire family was present when I delivered the news that the growth was benign. To me, it was no big deal, but the family rejoiced and they all took turns hugging each other in relief.

On the other hand, we frequently deliver the news that a pet has a malignancy that will shorten its lifespan. Those are tough talks. No one sleeps well after one of those.

I am not immune. I have lost my last three dogs to cancer. I have also dealt endlessly with benign warts, cysts, and lipomas (fatty growths) in many of my pets. I can sympathize with what all my clients go through, because I have been there.

All lumps and bumps should be checked. If they are benign, celebrate it. If they can be removed surgically successfully, celebrate it. The other cases, we will do everything we can to help.

The Evolution of Sales

Dr. Ziegler

When I started my career as an associate veterinarian in a rural mixed practice, we had an ancient x-ray machine that not only performed poorly but was also a health and safety issue. One day, the machine quit working, and my boss called the x-ray “guy”. He showed up at the clinic in a big station wagon. In the passenger seat sat his wife, her hair in curlers looking a combination of angry and bored.

After examining the machine, he agreed that it was beyond repair. But, it was our lucky day! He just so happened to have an equally old but functioning machine in the back of his station wagon! Within minutes we were back in business and the salesman and his wife were on their way.

Now, fast forward many years. I was recently interested in a new piece of equipment. When I asked for a demonstration of the unit, I was told that I could not have one. The company would ship the equipment to me, and I would go onto their website to look at a video of how to use it. Depending on how that went, I was also mailed an invoice and a return shipping label, either to be used based on my decision.

Keep in mind that equipment costs have risen substantially over the years. A good x-ray unit is \$60,000. A surgical laser is \$50,000. An entry level ultrasound machine is \$30,000. A probe for dental x-ray is \$10,000. You would think that for that type of change, you could have a little face to face time with a real person.

In all honesty, there is an in-between. We do have some sales reps who show up on a regular basis and are very helpful to us. I enjoy these people. Being the dinosaur that I am, a little personal contact is appreciated.

I just cannot help but wonder where it all is going. They say that the next generation will learn everything via you-tube videos. I have no doubt that this is true. Veterinary medicine, like human medicine, is quickly going to telemedicine with appointments via Skyping vs face to face and phone consultations with a nurse practitioner. They say that e-mail is old school, but I am shocked with how many e-mail consults I do daily. I do not think I could do my job without it. So many changes in such a short period of time. We are assured that there will only be a more rapid advancement in these technologies.

The days of the sales person visiting you in their station wagon with their spouse along for the ride are long gone. There is no going back. I can accept that, but I am at least glad that I have the memories of how things used to be. Those were fun days because they involved human interaction. You just do not get the same experience watching a video on a website. There is a large segment of our population that will never appreciate that fact. I would like to say that I feel sorry for them, but I do not. We all have created the world we live in, and therefore, we must accept it as it is. Life, like a salesperson in a station wagon, must move on.



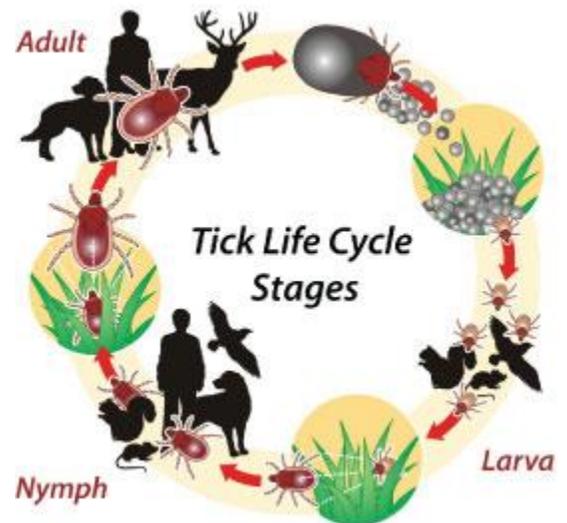
Flea and Tick Season is Here to Stay

Dr. Kyle Ruedinger

As the temperatures warm up and we say good bye to winter, flea and tick season is ramping up in full force. We tend to think of the warmer months as flea and tick 'season', but unfortunately these parasites are out year-round, and their break season is becoming shorter each year for a variety of reasons. It used to be that the cold hard winters would prevent ticks for the entire winter in much of Wisconsin, but lately with the increasing mid-winter thaws these critters are out. People also sometimes think of fleas as only a warm weather problem. While part of the flea life cycle depends on warmer temperatures, your home is the perfect environment for fleas to live. We had many pets in to visit the clinic with ticks or fleas along for the ride during the winter months. These parasites will all be out in full force very soon, if they are not already.

Everyone knows that fleas and ticks enjoy latching on our pets, and they also can transmit many diseases. Lyme disease is the most well-known among ticks, but others include anaplasmosis and ehrlichiosis. In 2017 over 300,000 dogs tested positive for Lyme disease (CAPC), including several hundred in our very own clinic! Most of these cases occur right here in the Wisconsin/Minnesota area and in the northeastern part of the country. We are also seeing more and more anaplasma positive dogs tested each year. The reasons for this are multifold including climate change, more testing, and increased awareness/better compliance with our canines.

While it is true that all dogs who are bitten by a tick will not ultimately become ill, we do not often go a week without diagnosing at least one dog with a tick-borne illness requiring treatment, and in fact most weeks have several cases. Sadly, these cases are nearly completely preventable. We are much better off preventing these types of diseases than treating them. No one wants their dog to become ill, and it costs a lot more money to treat than to prevent these diseases. Both treatment and the tests needed to find an accurate diagnosis can be expensive. The old words of 'an ounce of prevention is worth a pound of cure' hold true here. Besides, fleas and ticks are just gross, and nobody wants them taking a meal from our pets. As to what to look for with a tick-borne illness, some dogs will start limping, not eating, be lethargic, or have a fever; while other dogs will not act ill at all. This is part of the reason for routine screening each year. We have a test that can check for all the common tick-borne diseases and heartworm from a simple blood draw. This is recommended every year in all our canine patients as part of a preventative care plan.



It is recommended to utilize year-round flea and tick preventatives that are both safe and effective. Many products will function as both flea and tick preventatives and there are many available, some which work better than others. In Wisconsin both fleas and ticks are a problem so use one that protects your pet against both. There is also a vaccine that prevents Lyme disease which is recommended for most dogs in Wisconsin as we are a 'hot spot'. Currently the other tick diseases do not have vaccines available.

If you have questions about fleas, ticks, or their illnesses ask your veterinarian at your pet's next visit to the clinic. Always have your pet seen at the first sign of illness. If you need preventatives for your pet, call the clinic today.

We have the following available specials. Stock up for the season!

Flea/Tick Products

Nexgard: Buy 6 and get 1 free

Bravecto: Buy 2 doses per pet and get a \$15 rebate

Plus, for the entire month of April, mention this article and get 5% off all preventatives!!



When Pet Owners Can't Afford Veterinary Bills

Heidi Jacobson

If your beloved cat or dog gets into an accident, falls ill, or receives a scary diagnosis, you might find yourself facing a large medical bill that strains your finances. If you are like us, our pets are our family, and you'll do your best to make sure they get the best care possible.

It is estimated that in 2016, pet owners spent more than \$15 billion on veterinary care. Routine visits to the vet run dog owners an average of \$231 each year and \$193 for cat owners. When pets require surgical care, those yearly vet bills increased to \$621 for dogs and \$382 for cats.

One of the most difficult conversations you have with your veterinarian is when you simply cannot afford the services that have been recommended. It is not uncommon to find yourself needing help with unexpected veterinary bills.

The following is a small list of a few organizations or groups dedicated to helping you financially through your pet's recovery. (There are many out there). Some are specific in terms of the type of medical care they will cover, the state or region where you reside, family income levels, etc. While the descriptions below provide general information for the organization, I encourage you to check the organization websites for specific, up-to-date information. If you find any links below that are no longer working, please let me know by emailing me at hjaconson@wrvet.com

CareCredit

www.carecredit.com

1-800-677-0718

A credit care company for health care, including veterinary care. With comprehensive range of plan options, for treatment or procedure fees from \$1 to over \$25,000. They offer a plan and a low monthly payment to fit comfortably into almost any budget.

Paws 4 A Cure

www.paws4acure.org

The mission of Paws 4 A Cure is to provide financial assistance for canine and feline owners who cannot afford veterinary care for their beloved furry family members otherwise.

The Magic Bullet Fund

www.themagicbulletfund.org

Every day 8,000 dogs are diagnosed with cancer. They help the families who can't afford treatment costs.

The Pet Fund

www.thepetfund.co

1-916-443-6007

While costs are an inevitable part of the responsibility of owning companion animals, The Pet Fund assists owners in covering medical costs beyond the normal expenses of vaccinations, spay and neuter surgeries, food, and routine veterinary care. Adopting companion animals always involves both expense and commitment, and if owners have recourse to help with medical services, their animals can receive necessary care despite the financial burdens involved.

Brown Dog Foundation

www.browndogfoundation.org

Provides funding to families who find themselves with a sick pet that would likely respond to treatment, but due to an unforeseen circumstance, there is not enough money immediately available to make it happen.

Dr. Steve Abrams Memorial Foundation—Pet Savers, Inc

www.doctorsteve.org

Grants are awarded for sick and injured pets whom, otherwise would not be treated due to the finances of their owners. Their vision is to eliminate the euthanasia of pets because of economics. Applicants must meet these criteria: have verifiable financial need, denied by CareCredit or a similar program, and have a favorable prognosis from a veterinarian.

Here are some other helpful resources for financial difficulties:

- ✓ Exchange services with family, friends, neighbors—for example, doing home repair, babysitting, or cleaning in exchange for payment for needed veterinary care.
- ✓ Hold a garage sale to get rid of unused or unwanted appliances, furniture, equipment, etc.
- ✓ Ask your credit card company for an increase in available credit.
- ✓ Consider meeting with a credit counseling service if your credit rating is poor, or you have too much credit debt, to reduce your debt and arrange an affordable payment plan.
- ✓ Consider consolidating your credit debt into a single loan or refinancing your home to lower your total debt/monthly payment due.
- ✓ Apply to your bank or credit union for a short-term loan.
- ✓ Sell unwanted items of value on an internet auction site. (Ebay, Craig's List, etc.)
- ✓ Register with a local temporary agency to obtain employment on a "temp basis", or to pick up a part-time or second job to generate additional income.
- ✓ Consider monthly deductions from your paycheck to a fund specifically for your pet's needs.
- ✓ Evaluating your monthly budget can be useful—cutting "extras" like cable television fees, eating out, etc. can add up quickly. Make a list of essential needs; then temporarily cancel all extra expenditures.
- ✓ Consider a fundraising campaign at www.gofundme.com or another fundraising site. Online fundraising doesn't have to be hard. Whether you're raising money from hundreds of supporters or just friends and family, these sites let you fundraise quickly and effectively.

Whichever way you usually pay for veterinary treatment for your pet(s), it is wise to make sure that you have a plan in place of how you would pay a large bill should the worst happen.



My Little Felon

Chandell Dain

It has been almost 4 years since I picked out a fluff ball of a pup I named Mossy. My then boyfriend and I stopped at a farm to see some husky mix puppies. We told each other that there was no way that we would be going home with one. We even pinky promised. But, as soon as that tiny brown fluff ball bowled out of the barn and started chewing on my boyfriend's shoes I was committed. I was committed to that puppy, not the promise I made my boyfriend. Since that moment, I have countless stories and memories stored away starring Mossy.

A few in particular, have been running through my mind a lot lately. It seems that every single spring, while everything is melting, and the dead things of winter are beginning to awaken, Mossy's nose gets her in trouble. We have 6+ acres for her to roam. Which, in my non-canine mind, would be plenty of room for shenanigans. Mossy, however, does not think so. Being the adventurous, running, crazy mutt that she is, she takes off.

I have lost my voice countless of times calling for her to come home. She would never return on her own. Never. Luckily, we have nice neighbors. We have also had to pick her up from Wolf River Vet Clinic twice (this was before I began my career here—great first impression). Since then my family and I call her our little felon. Locked up in doggy jail, I could only imagine how she was feeling—lost, scared, alone, proud maybe? Well, I can tell you how I felt—terrified, heartbroken, lost, alone, guilty.

After the second time, I learned my lesson and I had her microchipped. Those many times she ran off could have ended so terribly wrong. We were lucky they didn't, and she was able to return to us. I see so many "lost pet" posts on Facebook and at work. Every time I pray they are found safe because I am all too familiar with that empty fear of not knowing.



Expectations

Dr. Ziegler

I recently read a short book titled 'A Search for a Perfect Dog' by Gary Shiebler. Towards the end of the book, he made the following comments after adopting an energetic, unruly Golden Retriever; "I was angry and disappointment with his behavior. I wanted him to be the perfect dog. But no matter what I said or did, he would not change. I tried to fix him. I read books. I sought counsel from friends. I took him to an obedience class. Nothing worked."

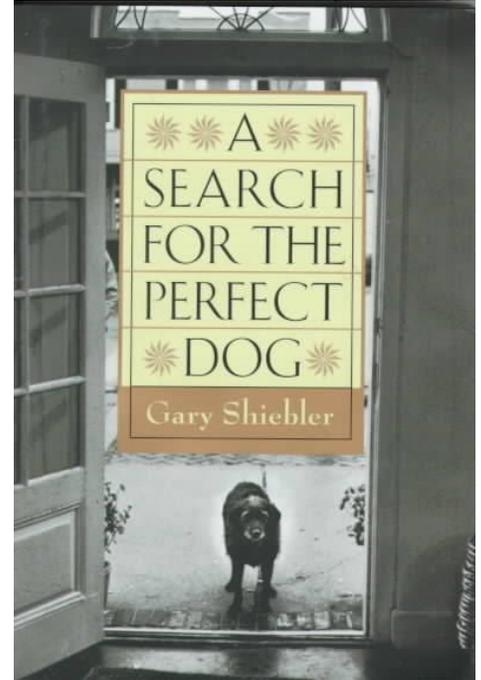
After reconciling his relationship with the dog, he concluded, "of all the lessons I learned, perhaps the greatest one is that imperfect dogs are no less worthy of love than are the so called perfect ones. I realized that it was time to stop searching for the perfect dog and start loving the one I had."

This is a powerful statement. As a veterinarian who works with a variety of rescue groups, I see it all the time—the "imperfect" pet is surrendered because the (far from perfect) pet owner is unhappy. The now abandoned pet is up for adoption to find it's "forever home". Or worse, it is euthanized. How many stories are there about a pet who goes through multiple homes before it lands in a home who accepts it for what it is. I have been there with one of my own dogs, Bella, the unruly Border Collie on death row. I was her sixth home. Is she the perfect dog? Far from it. It took us years to come to an understanding, and some days, I am not sure that we have made it there yet. It has not been easy, but I also did not expect it to be.

The same can be said of life in general. Expect it to be easy, and you are going to be disappointed. Expect it to be a challenge and a struggle, and you will probably do ok. Instead of expecting the world to meet your expectations, try to adapt and evolve a bit and you will be happier and more settled. Dig your heels in and refuse to change—get ready for a lot of change. Just kind of the way it goes. I find it very interesting that those who change jobs the most, change relationships often, always seem to have a new pet, cannot tolerate the community they live in, etc. also whine and complain the most. Their discontentment is a reflection of their unhappiness. Sad, but very common.

But getting back to animals. I remember a client once commenting, "there are so few of us who are actually qualified to have pets". Very true. But then there is the flipside. Maybe the hurdles of having a pet will make us rise to the challenge to become the pet owner we should be. I have never been qualified to do anything in life. I have had the same choices everyone has—get better or quit. Pretty straight forward choices. Animals can help to make us better if we are up for the challenge. If we have the tenacity, we can all morph into being the qualified whatever it is we want to become.

I would have to say that we should not put expectations on our pets. Rather, we should put them on ourselves. Pets do not need to rise to the challenge—we do. This is life. We can accept life's hurdles and be reasonably happy, or we can be an unhappy victim of all that happens to us. It is a personal choice. What else would you expect?



Dog Quiz

Test your knowledge of dogs with our fun dog quiz. Can you answer questions about popular breeds, life expectancy, senses and their diet? Dogs have shared a special relationship with human beings for thousands of years. They are cute and playful as a puppy and it doesn't take most of them long to mature into obedient pets that are a joy to live with. They are also unique animals that offer several interesting facts and trivia. So how many of these facts do you know? Answer as many questions as you can before scrolling down the page to check how many you got correct

1. Is the domestic dog a carnivore, omnivore or herbivore?
2. True or false? Like most mammals, dogs have color vision which is similar to red-green color blindness in humans.
3. What is a dog's most powerful sense?
4. The average lifespan of dogs is around 5 to 8 years, 10 to 13 years or 15 to 18 years?
5. According to the American Kennel Club, what is the most popular dog breed found in the USA?
6. True or false? Dogs are susceptible to parasites such as ticks, mites and fleas.
7. Who has better hearing, a human or a dog?
8. What is the name of the phobia for someone who has a fear of dogs?
9. True or false? The tallest dog in the world stands over 150cm in height.
10. Because of a dogs unique relationship with humans they are often referred to as man's best...?

Dog Quiz Answers

1. Omnivore - Dogs can healthily eat a range of foods including grains and vegetables as part of their daily nutritional requirements without the need to solely rely on meat.
2. True
3. Its sense of smell.
4. 10 to 13 years
5. The Labrador Retriever
6. True
7. A dog - Dogs can hear both above and below humans on the frequency spectrum, can pinpoint sound direction faster and can hear sounds that are four times as far away as what humans can hear.
8. Cynophobia
9. False - The tallest dog is a Great Dane that stands 106.7 cm (42.2 in) at the top of the shoulder.
10. Friend

HYPERTHYROIDISM IN CATS: IT CAME FROM NOWHERE. WILL IT DISAPPEAR AGAIN?

Dr Pete Gasper

Hyperthyroidism In Cats:

Hyperthyroidism is caused by overactive thyroid cells. The thyroid is a gland that is located in the neck. It secretes hormones that regulate metabolism. Hyperthyroidism would seem to be an enviable condition because cats (and people) with this disease have an increased appetite, but they lose weight. However, hyperthyroidism is a dangerous and unpleasant disease. It can lead to a premature death from a number of conditions including heart failure.

Cats with hyperthyroidism suddenly become thin and hungry. Most develop a dry scruffy hair coat. Nationwide, about 10 percent of cats will be found to have the disease. Ninety four percent of affected cats are over the age of 10.

The good news is that we can treat hyperthyroidism and we can ease your cat's distress.

It Came From Nowhere:

A number of you have heard me say, *I graduated from veterinary school in 1980...*

I then gab on about something. Usually, the topic is my amazement regarding the mode-of-action of some of the new drugs we use today (like Apoquel or Bravecto) or about the importance of dental hygiene.

My experience with feline hyperthyroidism is like the experience of a veterinarian, Dr. Mark Peterson, who is described in a recent New York Times Magazine articleⁱ.

When Peterson entered veterinary school in 1972 [I started in 1976], feline hyperthyroidism seemingly didn't exist.

In the (gulp) almost 40 years since Dr. Peterson and I have graduated from veterinary school, hyperthyroidism in cats has become an epidemic. We may be starting to understand why.

Where did it come from?

A number of studies have been performed to answer this question^{ii,iii,iv}. What has been determined for certain is that hyperthyroidism occurs more frequently in cats that live indoors and in cats that consume canned food.

Chemicals—particularly some used primarily as flame retardants in clothing, bedding, and electronics—appear to be the *cause*. These chemicals—polybrominated diphenyl ethers (PBDEs) and polychlorinated biphenyls (PCBs)—are known to interfere with the thyroid gland.

I put the word *cause* in quotation marks. Scientists are more comfortable saying that there is *an association* between PBDEs and PCBs and hyperthyroidism in cats. Just because cats that have hyperthyroidism have 20 to 100 times higher levels of PBDEs in their blood doesn't mean that PBDEs are the cause.

One can argue that the reason hyperthyroid cats might have the higher levels is because their metabolism is revved up. An increased metabolism might cause a disproportionate release of organic pollutants from their cells into their blood.

Questions remain. Why is it that it that our cats, and not our dogs, contract hyperthyroidism? Dr. Linda Birnbaum, an EPA scientist wonders if it is because of behaviors unique to cats. *They crawl on the floor. They sit on the couch. They lick their paws all the time. So anything in the dust, they're going to end up ingesting^v.*

Will it Disappear Again?:

Starting in the 1990s, concerns were raised about how PBDEs accumulated in the blood, breast milk, and fat tissues of people. Studies in Canada found significant concentrations of PBDEs in common foods such as salmon, ground beef, butter, and cheese. PBDEs have also been found at high levels in indoor



dust, sewage sludge, and effluents from wastewater treatment plants. Increasing PBDE levels have also been detected in the blood of marine mammals such as harbor seals^{vi}.

In 2003 the Environmental Working Group published test results showing that the average level of fire-retardants in breast milk from 20 American mothers was 75 times higher than the average levels measured in Europe^{vii}.

From what I could determine, the United States phased out the manufacture and import of PBDEs in 2004^{viii, ix} and PBDEs have been increasingly regulated around the world^x. While these organic pollutants persist in the environment for a long time, there appears to be good news. Scientists have noted a decline of PBDEs in San Francisco Bay^{xi}!

If PBDEs and PCBs are to blame for hyperthyroidism in cats, this distressing disease should disappear.

ⁱ *The Mystery of the Wasting House Cats*, New York Time Magazine, May 16th, 2017.

<https://www.nytimes.com/2017/05/16/magazine/the-mystery-of-the-wasting-house-cats.html? r=2>

ⁱⁱ *Hyperthyroidism in cats linked to PBDE exposure*, American Veterinarian, August 03, 2016.

<http://www.americanveterinarian.com/news/hyperthyroidism-in-cats-linked-to-pbde-exposure->

ⁱⁱⁱ *The feline thyroid gland: a model for endocrine disruption by polybrominated diphenyl ethers (PBDEs)?*, J Toxicol Environ Health A. 75(4):201-12, 2012. <https://www.ncbi.nlm.nih.gov/pubmed/22352329>

^{iv} *Association of Polybrominated Diphenyl Ethers (PBDEs) and Polychlorinated Biphenyls (PCBs) with Hyperthyroidism in Domestic Felines, Sentinels for Thyroid Hormone Disruption*, BMC Veterinary Research 13:120, 2017.

<https://bmcvetres.biomedcentral.com/articles/10.1186/s12917-017-1031-6>

^v *The Mystery of the Wasting House Cats*, New York Time Magazine, May 16th, 2017.

<https://www.nytimes.com/2017/05/16/magazine/the-mystery-of-the-wasting-house-cats.html? r=2>

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