

Best friends

THE PET MAGAZINE OF THE ONTARIO VETERINARY COLLEGE

PAWSITIVE BEGINNINGS

Starting your puppy off on the right paw

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HEAL, BOY

how your pet may save your life one day

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From the desk of our Managing Director

KIM AND HARLEY

Spring and summer are popular times of the year for pet owners to welcome a new animal into their home. Adding a new pet to your family can be an exciting, eventful and demanding time. Hard work and dedication pays off and ideally your new pet will become a treasured part of your family and grow to become a loving, loyal companion. In this issue of Best Friends you'll find valuable information about how to prepare for pet ownership from our OVC expert Dr. Jason Coe, who recently welcomed a new puppy named Harley into his family. Be sure to read Dr. Coe's recommendations on informed pet ownership and the human-animal bond if you're looking to add a new puppy (page 6) or rabbit (page 10) into your home in the near future.

OVC Pet Trust continues to invest in projects that are advancing animal health. From investigating the brain activity in epileptic dogs, to using a novel virus as a vaccine to treat cats with breast cancer, to measuring disease markers of bone cancer in dogs with routine blood samples, our researchers are at the forefront of veterinary medicine to help the pets we love, live longer, healthier lives. Learn more about newly-funded projects to enhance companion animal health and well-being in Your Gifts at Work on page 27.

I am constantly inspired by all of the creative and generous ways people give back to OVC Pet Trust. We are so fortunate to have donors and supporters who celebrate their love of animals in unique ways. No matter how you give back to OVC Pet Trust, you are truly making a difference, and I sincerely thank you for your support.

Kim Robinson
Managing Director, OVC Pet Trust
Ontario Veterinary College
University of Guelph

This past fall, the National Post published a feature story based on health reporter Sharon Kirkey's time spent visiting OVC, meeting and interviewing our veterinarians, our researchers and our clients. I hope you'll appreciate reading her article which appeared on the front page of the national newspaper last October. Heal Boy: How Your Pet May Save Your Life One Day, is included as a special insert in this issue. It highlights the importance and value of the life-saving and translational health benefits of what happens at OVC, and the critical role OVC Pet Trust plays in supporting these initiatives.

BEST FRIENDS MAGAZINE IS PUBLISHED TWO TIMES PER YEAR BY OVC PET TRUST

OVC Pet Trust, founded in 1986 at the Ontario Veterinary College (OVC), University of Guelph, is Canada's first charitable fund dedicated to the health and well-being of companion animals. The Ontario Veterinary College is a leader in veterinary healthcare, learning and discovery for the health of all species, including our own.

To learn more or to make a donation visit www.pettrust.ca

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What Pet Owners Need to Know About... **CANINE INFLUENZA**

WHAT IS CANINE INFLUENZA (H3N2)?

Canine influenza (H3N2), more commonly known as dog flu, is an avian influenza virus (bird flu) that spread to dogs in Asia in the mid 2000s and more widely in some parts of the region, particularly China and South Korea. It was introduced to the United States in 2015, and has spread to multiple parts of that country. The first known canine influenza case in Canada was reported in early 2018, when two dogs who were imported from Asia to Essex County, Ontario, were diagnosed.

Influenza in dogs has many similarities to influenza in people. Most affected dogs develop typical flu-like signs such as coughing, fever and runny nose or eyes. While most dogs (like most people with human flu) recover uneventfully, a small percentage of dogs can develop serious, and even fatal, disease. As of Spring 2018, clusters of the outbreak have been confirmed in Windsor-Essex, Muskoka and Northumberland County, with an estimated 200 Canadian dogs infected with the virus as of late March.

DOES CANINE FLU POSE A PUBLIC HEALTH RISK?

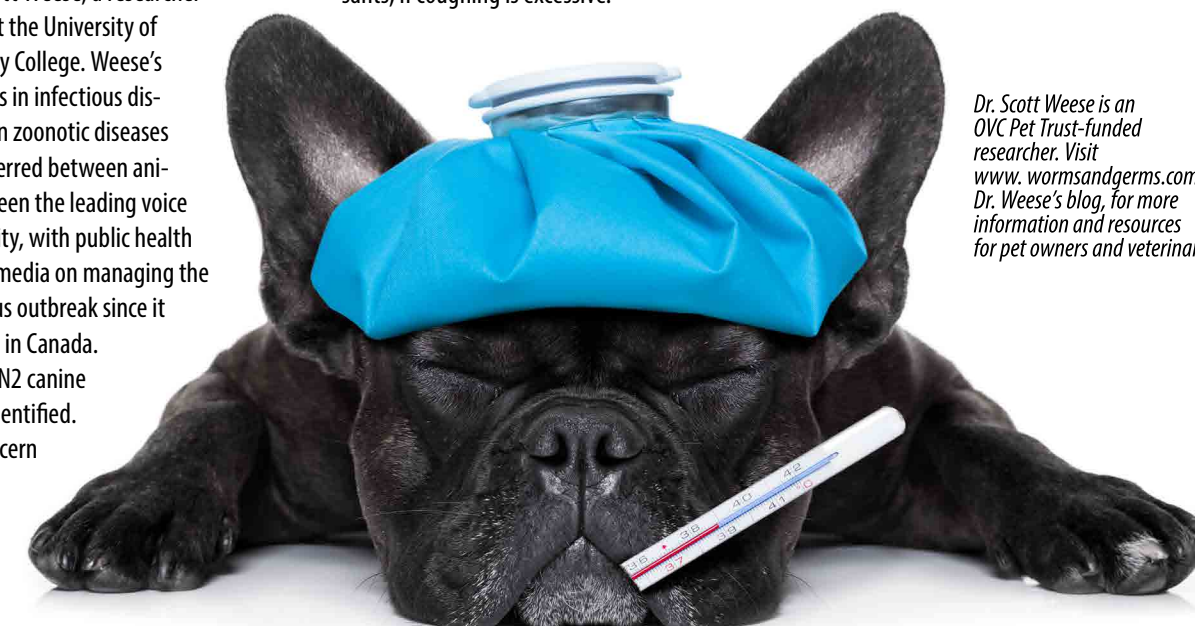
The odds are pretty low, says Dr. Scott Weese, a researcher and veterinary specialist at the University of Guelph's Ontario Veterinary College. Weese's primary area of expertise is in infectious diseases, with an emphasis on zoonotic diseases – those that can be transferred between animals and people. He has been the leading voice in the veterinary community, with public health agencies and in the news media on managing the H3N2 canine influenza virus outbreak since it appeared for the first time in Canada. Human infections with H3N2 canine influenza have not been identified. Weese says the bigger concern from a public health point of view is the threat of the virus combining with

another flu virus to create a new flu strain that could affect both animals and people.

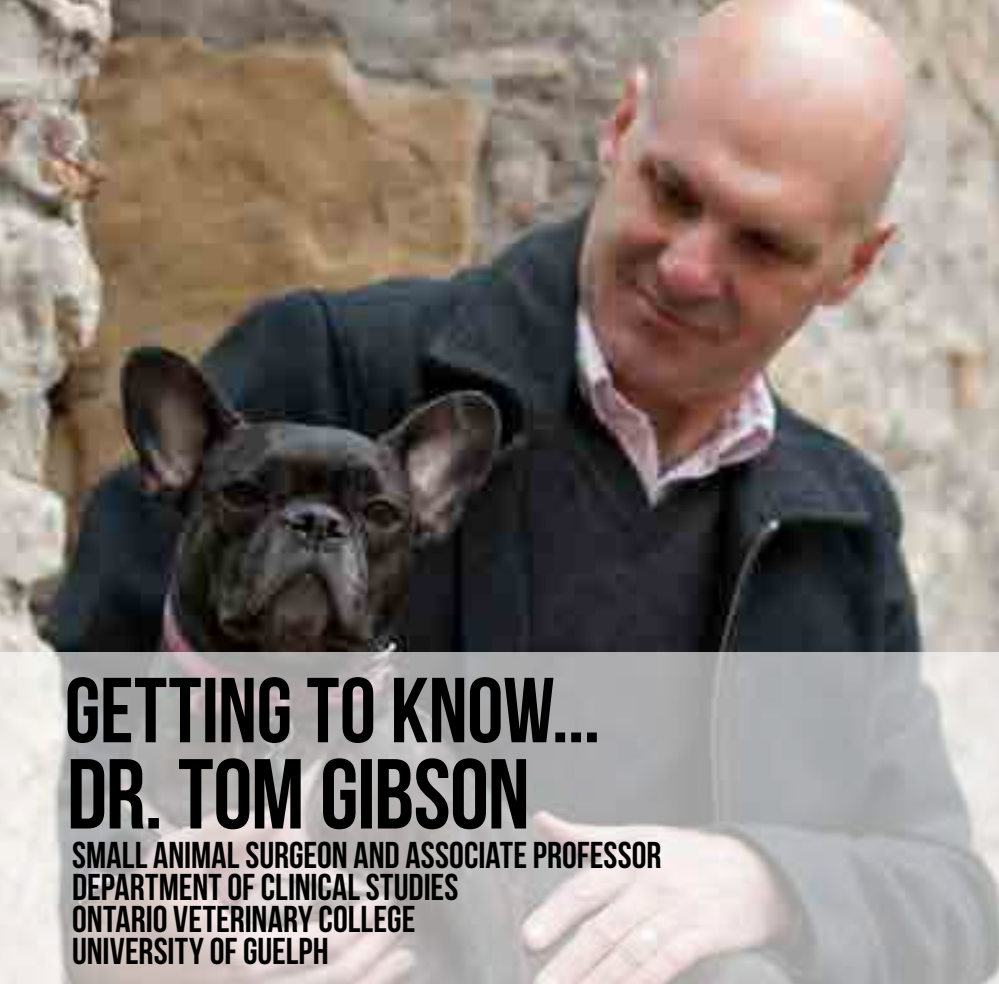
"Currently, the risk of the disease spreading to humans is very low," Weese says. "Controlling the spread through the dog population is what the veterinary community is most concerned with at this point. If you suspect your dog has been in contact with another dog that has been infected, it is best to contact your veterinarian."

HOW TO PROTECT YOUR DOG FROM CANINE INFLUENZA

- If your dog is sick, keep it away from other dogs.
- If you are out with your dog and see a sick dog, keep your dog away from it.
- If you have contact with a sick dog, wash your hands, and ideally change your clothes, before you touch your dog.
- Most dogs with influenza get over it on their own. As long as they are bright, alert, eating and don't have yellowish nasal discharge, veterinarians typically do not provide any specific treatments beyond cough suppressants, if coughing is excessive.
- If your dog has signs that could be consistent with influenza (e.g. cough, nasal discharge, fever, runny nose or eyes) and you are taking it to your veterinarian, make sure you call the veterinary hospital first so that they can use measures to prevent exposure of other dogs at the clinic (e.g. admitting your dog directly to an exam room or isolation area).
- If your dog is sick and has been at a kennel, doggy daycare, puppy class or any other event, contact the owner or operator to let them know.
- If your dog is diagnosed with influenza or has signs consistent with influenza, it should be kept away from other dogs for four weeks, even if appears to be healthy before the end of that period. Some dogs can continue to shed the flu virus for a couple of weeks after they recover.
- Canine influenza can infect cats, but the incidence appears to be very low.
- Vaccination is not a guarantee, but it can reduce the likelihood and severity of disease. Ask your veterinarian if vaccination is recommended for your dog. 🐾



Dr. Scott Weese is an OVC Pet Trust-funded researcher. Visit www.wormsandgerms.com, Dr. Weese's blog, for more information and resources for pet owners and veterinarians.



GETTING TO KNOW... DR. TOM GIBSON

SMALL ANIMAL SURGEON AND ASSOCIATE PROFESSOR
DEPARTMENT OF CLINICAL STUDIES
ONTARIO VETERINARY COLLEGE
UNIVERSITY OF GUELPH

Why surgery? I chose a career in surgery for the challenge and the creativity. You can do the same surgical procedure hundreds of times and you never really know what you may be faced with in the operating room. That's the thing that terrifies me the most about surgery, but it's also the most exciting. We get to fix pets; it's very rewarding. I love seeing students, interns and residents get inspired by surgery. I was once a resident myself and second-guessed my skills; to watch our students learn, grow and progress is so much fun. Surgery can also be exhausting – physically, mentally and emotionally – and it can be devastating when, despite our best efforts, we don't always win and we don't always have the outcomes we would wish for all of our patients.

What projects are you currently working on? Right now I'm examining a novel drug delivery system for patients with postoperative infections along with a team of OVC experts. Implant-associated bone and joint infections occur when bacteria adheres to the plates and screws that we place in a pet's body. These

materials can become infected and form a biofilm, or a slime-like product, that resists treatment by many of our first-line antibiotics. We are looking at the possibility of using a gel containing antibiotics and enzymes to prevent surgical site infections that may result from our use of surgical implants. Some antibiotics that are most effective against resistant bacteria can cause damage to the kidneys. We are exploring the possibility of a local gel therapy that could be an option to proactively prevent an infection without having widespread side effects throughout a pet's body.

How could patients benefit from your surgical site infection research? Tibial-plateau-leveling osteotomy (TPLO), a surgical procedure to repair the cranial cruciate ligament (CCL), is the most common joint injury in dogs around the world. CCL is similar to an anterior cruciate ligament (ACL) tear or common knee injury in humans, except in dogs this disease is a degenerative process and not an athletic injury. About sixty per cent of dogs that sustain a CCL rupture in one hind leg, will rupture the other. TPLO surgery

has been associated with a higher than normal infection rate. The reasons why are unknown but it may be a result of the reduced soft tissue coverage in the area where surgery is performed. Our work on surgical site infections is intended to find a way to decrease the chance of infection in TPLO, and other surgical patients as well. Another area of interest of mine is rehabilitation and our pets' post-operative recovery. I have recently become a Diplomate of the American College of Rehabilitation and Sports Medicine and hope to pursue additional research in this area.

What impact does OVC Pet Trust funding have on your research?

I have been very fortunate to be involved in many projects that have been supported by OVC Pet Trust. Simply put, OVC Pet Trust is the life-line for the work we do here at OVC. If our work can have an impact on day-to-day cases that general veterinary practitioners see and treat, it makes it more meaningful for us as researchers and for the profession of veterinary medicine as a whole. Support from OVC Pet Trust positions us to be at the forefront of veterinary medicine and education and continue to be a centre of veterinary excellence in the world.

Tell us something about yourself that might surprise your colleagues.

Twelve years ago I became interested in cycling. In 2010, I rode my bike across Canada to raise funds for the Coast to Coast Against Cancer Foundation, a national charity devoted to fighting childhood cancer. At the University of Guelph, our team has raised almost \$250,000 for the organization via The Inside Ride, an indoor cycling challenge and fundraising event dedicated to raise money in support of children with cancer and their families.

Do you share your home with any pets? My family has a Boston Terrier x French Bulldog named Poppy, and a new addition, a Standard Poodle puppy named Henry. My wife (OVC Internal Medicine Specialist Dr. Shauna Blois) and I also have six-year-old twin (human) boys. 🐾



PAWSITIVE BEGINNINGS

Starting your puppy off on the right paw

New research shows early socialization is believed to be critical to the healthy development of puppies. Socializing puppies is most important between the ages of four and 16 weeks, and involves helping a new pet become comfortable in their new environment by introducing them to many different types of people, spaces and places, pets, noises, sights, sounds and smells in a positive and controlled way.

Why is early puppy socialization important?

Early puppy socialization is believed to be critical to the healthy development of puppies. Socializing puppies is most important between the ages of four and 16 weeks, and involves helping a new pet become comfortable in their new environment by introducing them to many different types of people, spaces and places, pets, noises, sights, sounds and smells in a positive and controlled way.

Poor puppy socialization can result in fear and sometimes aggressive behaviour in dogs. Behaviour problems are a leading cause of breakdown in the human-animal bond, the relationship and positive connection between pets and their owners. It is estimated up to 50 per cent of owners say behaviour issues are the main reason for surrendering or giving up their pet to either friends, families or shelters.

A recent study from the Ontario Veterinary College (OVC) found puppies who attended puppy classes at less than 20-weeks of age were less likely to develop negative behaviour patterns or fear responses to normal events such as noises like thunderstorms and vacuum cleaners, and every day experiences like being placed in a dog crate.

“One of the main recommendations for pet owners as a result of our study is to take the opportunity to discuss all aspects of puppyhood with your family veterinarian – they are uniquely positioned to help,” says Dr. Jason Coe, one of the study’s authors.

“The ‘puppy year’ can be both an exciting and challenging time for owners while puppies adjust to their new lives,” says Coe. “Family veterinarians are an important resource for pet owners and can provide valuable information on what activities are considered positive for puppy socialization, discuss timing and troubleshoot individual behaviour issues. They can help develop a positive reward-based training program and also answer questions about introducing a new puppy to children or other pets.”

There are many steps pet owners can take to start their new puppy off on the right paw.

Are you thinking of welcoming a new puppy into your home?

If you are contemplating adding a puppy to your home, it is important to understand what you are looking for and what your expectations are of your new pet. Research has shown that the success of a human-companion animal relationship is influenced by whether an owner’s expectations can be met by the dog and whether the needs and lifestyle of the owner and personality of the dog match. Owner expectations can relate to the time and effort required in caring for your dog (walks, training, veterinary visits), the role of the dog in the household (friend, protector) and the annual cost of owning a dog. Therefore, before choosing a new dog, it is beneficial to think about your schedule, your household members, living situation and the type of personality you would like your new dog to have.

Advice from the experts

If you have a new puppy or if you are considering a new four-legged addition to your home, OVC experts recommend considering the following:

- ✿ It’s important to remember that puppies have an optimal socialization period, during which it is imperative your new pet has positive exposure to new people, animals, experiences and locations. This socialization period ranges from the first four to 16 weeks of a puppy’s life.
- ✿ Positive exposure to different kinds of new experiences prepares puppies for the development of future social relationships and helps to prevent fear in new and unknown situations.
- ✿ Puppy classes provide an excellent opportunity for owner education and puppy socialization and a great way to avoid serious pet behavioural problems.

New pet checklist

Before deciding to get a new pet, it would be beneficial to consider a variety of factors including:

- ✓ **Your lifestyle**
- ✓ **Time available to dedicate to your new pet**
- ✓ **Species differences**
- ✓ **Your current pet**
- ✓ **Your new pet**
- ✓ **Cost of pet ownership**

Dr. Jason Coe is an OVC Pet Trust-funded researcher. To learn more about how to prepare for pet ownership, visit www.beforeyougetapet.com.

Puppy sound check

The Neurology Service at the OVC Health Sciences Centre specializes in providing advanced and emergency care to companion animals. The team sees and treats a wide range of disease and conditions in pets including epilepsy, spinal pain, weakness, gait changes, muscle and nerve disorders and a variety of congenital and degenerative nervous system diseases.

One service in particular the Neurology team provides is hearing tests, or brain-stem auditory evoked response (BAER) testing. BAER testing is used to diagnosis deafness in pets. Registered Veterinary Technician (RVT) Jennifer Collins is in charge of administering the hearing test and normally sees up to 165 dogs per year.

Puppies are given this test between six and eight weeks of age, once their hearing is fully developed. Testing puppies for deafness is important because early identification allows owners to provide targeted training, improving comfort and safety for their dog, and allows them to be equipped with more information about how to interact with and help their dog navigate their world. Hearing tests are also available for older pets that may develop a loss of hearing as they age. When deafness is not an inherited or age related problem, loss of hearing may also be an indicator of other health issues, such as a brain tumour, infection or trauma.

Dogs can be diagnosed with deafness in both or just one of their ears. Dogs who are deaf can live a normal life by using their other senses, such as smell and sight, which are heightened. Dogs with hearing loss are best matched with an owner who is home more often and can provide a fenced backyard and dedicated time to training.

Nancy Warner’s seven English Setter puppies, shown here, visited the Neurology Service at the Ontario Veterinary College in February for brainstem auditory evoked response (BAER) testing, an evaluation of the auditory pathway as sound is translated from the eardrum to the brainstem.

For the Love of **LULU**

It's easy to see the love and affection Julia Clubb and Tony Soares have for their nine-year-old dog, Lulu.

Lulu and Tony start most days with a 10-kilometer run in their Toronto neighbourhood. The active, apricot Standard Poodle enjoys swimming, visiting her local dog park and spending time outdoors at their cottage. "There isn't a squirrel in our neighbourhood that is safe," Julia laughs. "Lulu has a sweet personality and always makes us laugh. There is nothing better than when you find a tennis ball at the park that isn't yours – that's our Lulu."

In June 2017 while visiting their family veterinarian, Dr. Lindsay Paterson at Rosedale Moore Park Veterinary Clinic, a small lump was found during Lulu's annual wellness exam. Lulu was immediately referred to the Ontario Veterinary College (OVC), where she was diagnosed with metastatic anal sac adenocarcinoma, a type of cancer. "We were totally devastated when we received the news," says Julia.

Lulu's diagnosis, anal sac cancer, is a highly-aggressive local cancer that can spread quickly through the lymph node system. Lymph nodes are part of the body's immune system and when dogs are healthy, they help to fight infection and disease. When dogs are sick, the system can work like a freeway, allowing disease to move and spread quickly, to all parts of the body. Unfortunately, Julia and Tony learned this was the case with their sweet Lulu. Upon arrival at OVC, Dr. Tony Mutsaers evaluated Lulu at the Mona Campbell Centre for Animal Cancer and recommended surgical consultation with Dr. Ameet Singh

and his team. Prior to surgery, Lulu had a CT scan that showed not only the enlarged anal sac, but 11 enlarged abdominal lymph nodes as well. The cancer had already spread throughout Lulu's body. An anal sac removal was performed followed by the removal of all abnormal lymph nodes. The goal of this surgery is to get rid of as much cancer as possible by removing the diseased anal sac tumor and abnormal lymph nodes.

Two weeks later, Lulu began chemotherapy to help manage her disease, as anal sac cancer has a high chance of reoccurring.

"Dr. Singh was not only caring for Lulu, but he also cared for us and what we were going through," Julia reflects. "The fear of the unknown as a pet owner in these circumstances can be overwhelming. During a time when we needed support, he went above and beyond, communicating with us regularly. He helped alleviate our fears, kept us up-to-date and formed a plan about how we would proceed and navigate our dog's diagnosis."

At a follow-up visit in late August, a CT scan found that Lulu had an enlarged lymph node in her chest. Singh was successfully able to use a minimally invasive surgical (MIS) technique to remove the lymph node with a procedure called thoracoscopy. Thoracoscopy involves several tiny incisions into the chest to insert a camera and surgical tools to remove a mass, or in this case a lymph node. Minimally invasive surgery means just that – a surgery that is the minimal or causes the least amount of intrusiveness to the body, because large incisions are not



"It truly is amazing how this technology can help pets," says Julia. "All of our friends at the dog park have heard about it from us because they knew what Lulu was going through. We are so thankful and have seen the benefits of minimally invasive surgery first hand."

The couple was so impressed with Lulu's recovery that they are holding an event at their home this spring to promote the work of OVC Pet Trust and support advancing the clinical research area of MIS at OVC.

It's been a tough haul, but the fight isn't over yet. Lulu will continue to return to OVC's Animal Cancer Centre every three months for monitoring, where her family meets with Internal Medicine Veterinary Specialist Dr. Danielle Richardson to talk about Lulu's health. Julia and Tony are appreciative Dr. Richardson has been a special part of Lulu's medical journey, helping to navigate their dog's post-operative care to continue the battle against her cancer.

"It means everything to us that OVC helped our dog," Julia and Tony both agree. "Lulu means the world to us. We are so thankful OVC was there to support us during one of the most devastating times in our life. It's difficult to put into words how grateful we are OVC was there when our family needed it most." 🐾

necessary as in the case of more traditional open surgeries. In general, MIS is associated with less pain, a shorter hospital stay and fewer complications in both humans and animals. While MIS is often preferred for these reasons, it may not always be an option depending on the patient's illness or disease. Lulu's owners noticed a drastic difference in her recovery after MIS compared to her earlier surgery in June, which had been a traditional open procedure.

"Lulu improved so much more quickly following the MIS procedure in her chest. She came home the next day, and you'd never know she'd had surgery. She was able to return to her every day activities much sooner," Tony remembers.

In 2017, Dr. Ameet Singh was named as one of 15 American College of Veterinary Surgeons (ACVS) Founding Fellows in Minimally Invasive Surgery. Dr. Singh has obtained additional training and experience in minimally invasive surgery (MIS) beyond the ACVS surgery residency training and devotes a major portion of his professional effort to the prevention, diagnosis, treatment and rehabilitation of patients undergoing MIS therapies and to research in the field of MIS.

The TALE *of* Minimally Invasive Surgery

Advancing care for pet rabbits

Rabbits are the third most owned pet in North America, after dogs and cats. Rabbits have become a popular pet for many reasons. They have a friendly nature, they can adapt easily to living in smaller spaces like apartments or condominiums and, since most are indoor pets, they don't necessarily need to spend time outside of the home.

Avian and exotic care is a special interest within veterinary medicine. Veterinarians who work in this area must understand the anatomy and health needs of a wide range of animals, many of which are not native to North America. From birds and reptiles, such as turtles, lizards and snakes, to companion mammals such as rabbits, ferrets and guinea pigs, avian and exotic specialists at the Ontario Veterinary College (OVC) provide diagnostic, emergency and advanced care for all sorts of species.

With rabbit ownership on the rise, they are now one of the most seen pets on the OVC Avian and Exotics Service – making up 30 to 40 per cent of the services' total patients. "Rabbits are very social animals. They generally enjoy interacting with people and form close bonds with their owners," says Dr. Hugues Beaufrère, OVC's Chief of Avian and Exotics Service.

Dr. Beaufrère, along with OVC Avian and Exotics specialist-in-training Dr. Claudia Kabakchiev and small animal surgeon Dr. Ameet Singh, is currently investigating the safety and benefits of minimally invasive surgery (MIS) to spay rabbits. According to

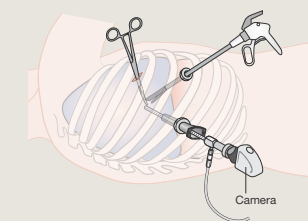
Beaufrère, health trends indicate there can be serious risks if rabbits are left unspayed. "Cancer of the uterus can be a very common disease in female rabbits," says Beaufrère. "If they are not spayed there is up to a 70 per cent chance they can develop this type of cancer over their lifetime."

Since rabbits are much smaller than other species, minimally invasive surgical options could prove to have its benefits. "Rabbits have a very different anatomy when compared to dogs and cats. The goal of our study is to determine if MIS spay procedures would be a better option for our rabbit patients," says Beaufrère.

Beaufrère stresses the importance of size when performing surgery on smaller pets. "An incision that would be considered tiny in a much larger animal is actually a very big incision for smaller animals, such as rabbits," adding that the ability to provide minimally-invasive options for these patients could decrease the size of surgical incisions by 50 to 60 per cent. It is for this reason that Beaufrère and his team are specifically looking at the use of miniature MIS equipment that is currently used in surgery for young children.

"At the end of the day, we hope to gain knowledge by determining the safest, most effective method for rabbit spay surgery, reduce patient health risks and provide the best evidence-based options for veterinarians and the growing number of rabbit owners out there." 🐾

What *is* Minimally Invasive Surgery?



Minimally invasive surgery (MIS) is common in human medicine, and more recently, in the veterinary world. MIS involves tiny incisions with scopes for doctors to see inside the body and remove organs, perform biopsies and other procedures. It is an alternative to traditional surgeries that involve making a large opening in the body; since the incision in MIS is very small, patients are usually able to recover faster and experience less pain when compared to "open" procedures.

MIS photo courtesy of Cancer Research UK / Wikimedia Commons.

Is a Pet Rabbit a Good Fit *for* You?

Pet owners' knowledge of pet care has been scientifically shown to affect the human-animal relationship and the welfare of companion animals. Before welcoming a pet rabbit into your home, it is important to make an informed decision and understand the demands of rabbit ownership and the type of care they require over their lifetime.

- Rabbits require a lot of care. Their cages need to be cleaned daily, they need to be fed at least twice daily and they require exercise and mental stimulation.
- Rabbits are most active in the morning and evening hours.
- Many rabbits do not like to be picked up. Rabbits have delicate bones compared to their muscle mass. Owners should practice careful handling to avoid bone fractures. If not held securely, rabbits can violently kick and break their back.
- A pet rabbit is a long-term commitment. They have a life span of approximately 9-10 years; some may live up to 12 years of age.
- Rabbits are prey animals. Owners must be very cautious if they are considering introducing a rabbit into a new home with other pets. If a dog or cat scratches or bites a rabbit, it can lead to serious trauma. Ask your veterinarian for more information.



THREE-WEEK-OLD BUNNY PATIENTS' FIRST HEALTH CHECK AT OVC WITH REGISTERED VETERINARY TECHNICIAN, SARAH. LEFT TO RIGHT: BURRITO, PUMPKIN, RUSSELL, BANDIT, BUNBUN AND PIP.

PASSION FOR PETS

REN'S PETS GIVES BACK TO COMPANION ANIMAL HEALTH

It wouldn't come as that much of a surprise that you'd be greeted by a couple of friendly "woofs" when you walk into the head office of Ren's Pets in Guelph. Life-size letters on the wall above reception welcome guests to headquarters: "Passionate about pets and the people they own," which not only serves as the company's corporate mission, but also embodies the way of life for employees and customers alike.

When President Scott Arsenault started with the company seven years ago, there were three Ren's stores. The premier pet retailer has grown to operate 16 stores across Ontario, with plans to open seven more this year and expand nationally across Canada in the coming years.

"Everyone who works at Ren's makes a difference in the lives of pets – from accounting, to marketing, to the front lines. Each employee plays a role in the big picture of our business," Arsenault says.

A couple of years ago Ren's head office adopted a pet policy, where employees are allowed to bring their dog to work with them. While there are guidelines, morale has increased and job performance has remained intact and perhaps even improved. "Everyone is so much happier. When you walk by purchasing and see Pivot the Border Collie, you have to stop and smile and say hi," Arsenault says.

When it comes to giving back, Ren's focuses on the pet owner community, confidently standing behind and passionately endorsing products and services aimed at improving healthy pet lifestyles.

Locally, Ren's works with humane societies within the communities in which they operate. They also strive to support organizations that value the bond between pets and the people that care for them. When they opened their fifteenth store in 2017, Ren's partnered with Don Cherry to exclusively sell a line of beef liver dog treats in honour of fallen Canadian soldier, Corporal Nathan Cirrillo, who was an avid pet lover and was killed in the line of duty at Parliament Hill in 2014. All proceeds from the sale of the dog treats support the training of rescue dogs

Even if your pet hasn't been referred to OVC for advanced or emergency care directly, the U of G will somehow have an influence on your pet's life.

as post-traumatic stress disorder (PTSD) service companions for military veterans and first responders in Canada.

Giving back to companion animal health and well-being is another important goal for the company. This past August, Ren's celebrated National Dog Day by raising funds at their store locations across Ontario for OVC Pet Trust, the company's national charity of choice. The event raised \$15,000, funds that will go towards advancing pet health through research, teaching and care at the Ontario Veterinary College (OVC).

"Pets are our family members," says Arsenault, who has three dogs and two cats of his own at home. "That belief is at the core of our business. We know our customers consider their pets to be an important part of their family and only want the best for them."

Arsenault believes OVC is the premier location for discovery and treatment for companion animals in Canada and beyond. "If you are a pet owner, you know the high level of care a pet will receive when someone says they are taking them to the University of Guelph (U of G)," Arsenault says.

"Even if your pet hasn't been referred to OVC for advanced or emergency care directly, the U of G will somehow have an influence on your pet's life. Whether it be the advanced care for animals that is available in their hospitals, treatment options that may not be available today but will be tomorrow because of the innovative discoveries of their researchers, or the training and education provided to their graduates (the family veterinarians that work in our local communities), your pet probably has been or will be positively affected by OVC during its lifetime," Arsenault says. "It may not be today; it may not be tomorrow. If you have a pet, they will most likely be touched by the work that's being done at Guelph. How can you not support it?"

Arsenault acknowledges \$15,000 was a good start for their first year of corporate support. "We play in the land of great at Ren's. Our goal is to give up to \$250,000 annually," he smiles. 🐾

Visit your local Ren's Pets store on this year's National Dog Day (August 26, 2018) to support OVC Pet Trust.

Life on OVC's Diagnostic Imaging Service



Animals of all shapes and sizes are referred to the Ontario Veterinary College (OVC) every day for specialized care. Some are sent for advanced tests which can involve state-of-the-art diagnostic imaging from highly-trained veterinary health care professionals.

The field of Diagnostic Imaging, sometimes known as Radiology, involves a series of different tests that take images of various parts of the body. Essentially, it is the science that uses various medical imaging techniques to diagnose and sometimes also treat diseases within the body, from chronic conditions like respiratory or kidney diseases to cancer.

Early diagnosis of disease in pets saves lives. Without diagnosis, there can be no treatment and no potential cure. For this reason, OVC's Diagnostic Imaging (DI) Service is a critical hub for all services within the OVC Health Sciences Centre and an important referral resource for primary care veterinary hospitals across the province and beyond.

The service is located deep within the hospital and offers a variety of specialized medical imaging procedures including digital radiography (X-rays), ultrasound, fluoroscopy (real-time X-ray), CT scan and magnetic resonance imaging (MRI). On average the team sees 40 patients per day, both large and small animals, and each day is different. Diagnostic imaging is the most visual of all medical specialties, and veterinary radiologists are specially trained to evaluate and interpret images to diagnose disease in all types of animals. Their skills and training allow them to often find a needle in a haystack, and their expertise and knowledge is critical in creating care plans for patients.

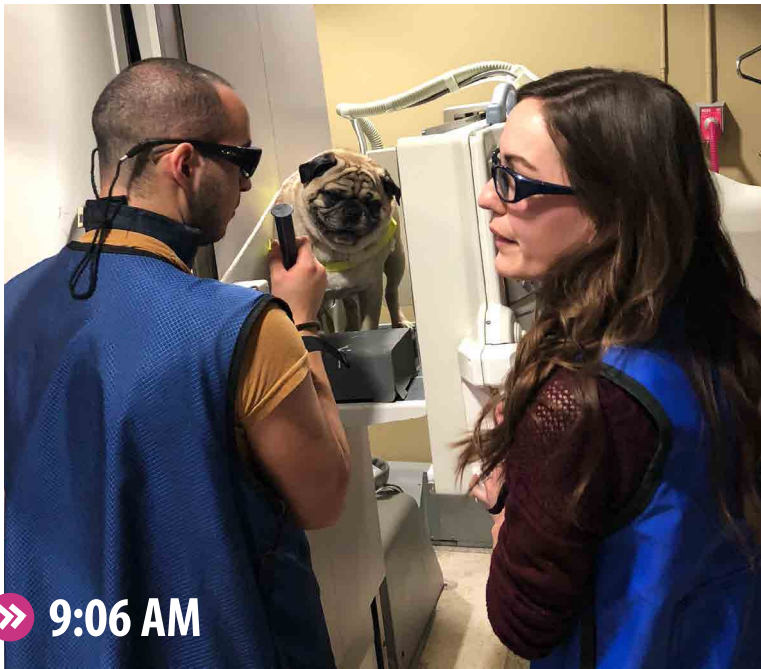
Our writer went behind-the-scenes with Diagnostic Imaging resident and specialist-in-training, Dr. Monica Jensen, for a glimpse into the black and white world of radiology.

Monica is a senior resident in the Doctor of Veterinary Science (DVM) program, a post-professional degree

dedicated to advanced clinical education and research. Monica's DVSc position is one of several specialist-in-training roles funded by OVC Pet Trust. The intensive training program will equip her with the knowledge and experience she needs to become a board-certified veterinary radiologist.

Monica spends the majority of her time performing ultrasound examinations and interpreting X-ray, CT and MRI images, and using these images to deliver diagnoses and make recommendations on next steps in patient care plans. Monica is also dedicated to her primary research project which is evaluating the presence and effectiveness of radiation safety training for student veterinarians and veterinary health providers in general practice. It is Monica's hope that her work will lead to the development of new and mandatory safety training guidelines for the use of X-rays in practice, as well as ensuring OVC is training student veterinarians to be leaders in radiation safety in the workforce.

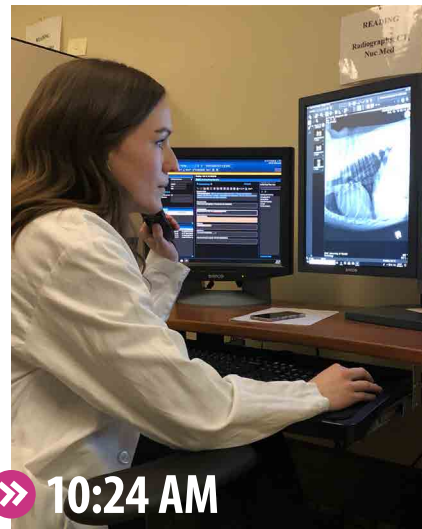
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of JD's throat, esophagus and stomach to try to find a cause for JD's history of vomiting at home. The process will involve three stages: taking X-ray images while JD swallows liquid barium, taking images after he eats canned wet food mixed with barium, and taking images after he eats liquid barium mixed with kibble. Barium sulfate is

» 9:06 AM

8:00 AM Monica's day begins with DI rounds every morning. While rounds in other specialties at OVC include checking in on patients, it's a bit different on the Diagnostic Imaging service. Monica, along with first-year resident Dr. Alexandra Beaulieu and board-certified veterinary radiologist Dr. Stephanie Nykamp gather in the "reading room" for the rounds of the day, with today's focus being "retro rounds". The OVC Health Sciences Centre is a teaching hospital, and Dr. Nykamp is both a supervisor and an educator; she oversees, instructs and mentors the entire medical team on her service. Monica pulls up a computed tomography (CT) scan of a cat with a thyroid tumour at her reading station. Dr. Nykamp and Alexandra pull their chairs over to join Monica. "Retro rounds is our dedicated time to review cases together as a team," Monica explains. The first hour of the day is spent examining historical patient scans, discussing diagnoses and disease processes. Dr. Nykamp prompts her residents with questions such as "What evidence supports your statement? What led you to that diagnosis? What's next for our patient?" to encourage discussion and debate. In a teaching environment this time is very valuable. It focuses on building interpretive skills and reinforces the importance of life-long learning within the veterinary profession. Critical evaluation and follow-through allows the team to ensure that they are practicing the highest quality of veterinary medicine by using each and every case as a learning opportunity.



» 10:24 AM

to move into the esophagus. JD also has an esophageal motility disorder, a condition where fluid and food don't move down the esophagus properly. Her findings are sent to the intern on the Internal Medicine service JD arrived on to share with his owner and to develop next steps in his care.

9:06 AM Monica's first patient of the day arrives, a Pug named JD, who is here for a real-time X-ray procedure called an esophagram. During the procedure Monica will take images

9:55 AM Monica is paged by a Registered Veterinary Technician (RVT) on her service. The team is ready for her to perform an ultrasound on a Newfoundland dog. In order to run the test with as little stress as possible for her patient, the dog is sedated before her arrival. General anesthesia is common for certain advanced imaging procedures that may demand more time and require patients to remain perfectly still, such as CT and MRI. When Monica arrives the RVT has already started the test along with two DVM students who are on their DI rotation. Monica takes over the procedure and receives a patient history from the RVT. She probes the patient to take a closer look and capture the images she will need to analyze.

10:24 AM Monica catches up on paperwork between patients. She regularly references evidence-based academic papers and findings during her report-writing. She downloads a paper about heartburn in veterinary patients and includes it in an email with some other follow-up information to the intern in charge of JD's case. A new ultrasound is underway for a dog with abdominal pain, vomiting and diarrhea. She reviews the ultrasound with her students. "Our ultrasound today isn't showing any reason that would indicate why our patient appears to be in pain," she says, curiously. "We can only rely on what the images tell us. It's frustrating when we can't find a clear answer." Some diseases can't be detected with imaging techniques and are only visible at the microscopic level. But Monica's findings are an important piece of the puzzle and may still help the patient's veterinarian when they review bloodwork and history to arrive at a diagnosis.

11:00 AM Monica isn't at her station for more than five to 10 minutes at a time before she is on the move throughout the hospital again. Radiology in veterinary medicine is more than just sitting in a dark room reading images; Monica is constantly out and about, conducting diagnostics in pets, consulting with her team and delivering her reports back to each service so they can then discuss treatment options with pet owners. With every passing minute, she has to stay on her toes and at the top of her game. Working well under pressure and attention to detail are definite requirements of the job. It is clear Monica is a pet lover; she has wanted to be a veterinarian since the age of five. Monica's uncle is a veterinarian and she used to visit his clinic as a child.



» 1:36 PM

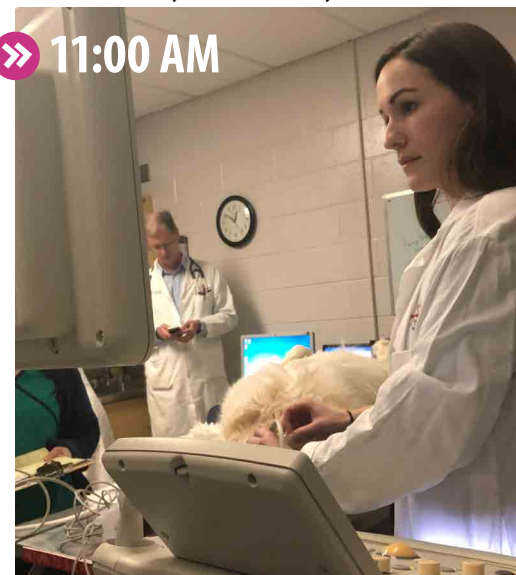


"I remember watching my uncle work with animals and know he was making a difference in the lives of his patients who couldn't speak for themselves, and I was hooked," she says. "I knew I wanted to make the same impact myself one day."

11:15 AM Dr. Nykamp checks in with her residents, discussing the day's cases and clarifying the medical language that should be used in report-writing. She reminds her team that continually asking questions is key and that while diagnostic imaging helps with more precise and faster diagnosis it is not the same as determining the severity of the diseases that are being interpreted.

"Diagnostic imaging is a process of discovery; it lets us see what is really happening inside the body and findings often direct the care plan rather than solve the health issue," Dr. Nykamp says. "It reminds us that veterinary medicine is truly a collaborative

» 11:00 AM



science and art. It is about listening, observing, seeing, interpreting, communicating and sharing information across many areas of expertise to help our patients get the best care possible and on to the road to recovery."

11:26 AM Brain scans from a patient in MRI land into Monica's queue as a horse patient named Casper from the Large Animal Hospital is prepared for a sacraliliac (SI) joint injection which is used to treat SI joint disease and pain. In horses this condition quite literally means a pain in the rump. The veterinarians on his care team hope this steroid therapy will help reduce their patient's pain and inflammation. Monica performs the ultrasound-guided procedure with Dr. Nykamp's supervision.

1:36 PM Monica's afternoon is full with scheduled appointments. Six dogs are here for ultrasounds this afternoon for various reasons, along with a guinea pig named Paddington who is experiencing diarrhea and stomach pain. A dog has his spleen examined and Monica takes fine needle samples for further testing. The cells she collects are placed on slides and sent to the University's Animal Health Laboratory for analysis.

2:43 PM While she is finishing up her paperwork for a patient, the Large Animal Hospital requests an emergency consult on a pig named Oliver. The service veterinarian suspects rupture of a component of the urinary tract and they look to Monica's expertise for answers. Monica performs an ultrasound on Oliver. Much of her job involves logic and an understanding of the physiological processes underlying what is happening in the body. She uses the images she captures to tell a story. Monica consults with Dr. Nykamp and Oliver's veterinarian to recommend next steps.

3:53 PM The day is jam-packed with organized chaos. There are three more planned ultrasound patients booked this afternoon. Monica carefully obtains images of each organ in the abdomen and records the measurements in her report.

4:03 PM Monica is responsible for providing mentorship to her junior resident. Alexandra asks Monica a question about a bearded dragon patient's anatomy while she examines his CT scan. Collaboration happens at all levels of learning and practice within veterinary medicine.

4:24 PM Members of the surgical team enter into the reading room to ask Monica and her fellow resident Alexandra about one of their patient's CT scans. It's Monica's job to provide insight, guidance and answers to move forward. The DI team is the

messenger; they're the deliverers of both good and bad news. The passion Monica has for her job is very obvious. "Most pet owners that visit OVC wouldn't know my name or who I am. This is still an adjustment for me as I loved the relationships I developed with people and their pets when I worked directly with them in private practice," Monica shares. "Instead, I look at and interpret images of almost every single patient that walks through the door and for that short amount of time, they become my patient. Seeing these patients treated and overcome their obstacles based on our imaging findings, the hard work of other veterinarians working on their case and the commitment of their owners is one of the most rewarding feelings I've experienced working in this field."

» 2:43 PM



5:06 PM After Monica sees her last patient of the day, rounds with student veterinarians begin, which are led by Monica and Dr. Nykamp. One student presents two cases from the day and summarizes case findings and patient history. Monica asks questions and helps fill in the gaps during the student's presentation. Dr. Nykamp reviews the schedule for the next day with her team, revealing they'll have an alpaca in for a CT scan.

5:30 PM Rounds are over and Monica is done for the day. "Some shifts are longer than others, depending on our case load and the number of emergencies that present over the course of the day," she says. The OVC Health Sciences Centre is open 24/7. Monica isn't on call tonight, but tomorrow it will all begin again. "I love the diversity of the imaging options we can offer at OVC and the wide range of animals I get to work with. It's not every field in medicine that you can go from treating a horse to a guinea pig to a kitten in the same day," she says. "I feel so fortunate to contribute to truly making a difference for people and their pets." 🐾

HEAL, BOY

how your pet may save your life one day

by Sharon Kirkey, National Post



BOSCO RECEIVES CHEMOTHERAPY AT THE ONTARIO VETERINARY COLLEGE.

GUELPH, ON — There are none of the usual padded chairs and IV poles in the chemo room, just black gym mats on the floor and doggy treats at the ready.

Eight-year-old Bosco is lying on his side, a catheter inserted into a hind leg. His handlers, wearing protective masks and gowns, are on the floor with him. One gently holds him down while the other checks to make sure the catheter is well inside the vein, so that the toxic chemo doesn't spill into the surrounding tissue. "I'm in," she says, then injects a syringe filled with the cancer drug doxorubicin. Bosco's owners, Alex Magditsch and Lynda McCarthy, first noticed a fatty lump on the dog's left side at Christmas, and soon after that, another small mass on his lower jaw. Their vet then discovered enlarged lymph nodes in his groin and neck.

By February, a biopsy came back cancer: aggressive multicentric lymphoma. For Bosco's owners, the grim diagnosis was devastating. "He couldn't possibly leave us, because we had fallen so deeply in love with him," Lynda remembers thinking.

On their vet's advice, they turned to the Ontario Veterinary College's Mona Campbell Centre for Animal Cancer. Bosco was immediately scheduled for 25 rounds of chemo at the facility, part of the University of Guelph. The family also agreed to enroll their mixed-breed rescue in several clinical trials, including one exploring whether a special molecular test can predict early enough how well dogs with advanced lymphoma are responding to their chemo, so they can be switched to a more effective drug if needed.

All this might sound extreme. The price tag for canine cancer treatments — surgery, chemotherapy, radiation and potentially another surgery if the cancer rebounds — can run \$10,000 to \$20,000. But Bosco's treatment could save not only his life, it may save yours. Lymphoma in dogs is strikingly similar to non-Hodgkin's lymphoma in people; the results of Bosco's clinical trial could lead to better therapies for cancer in humans.

It's just one of the diseases our pets may help us treat. Vets are collaborating with researchers in human medicine to study the genetics of a fatal heart disorder shared by dogs and humans. They're working on epilepsy, and stem cell therapy for spinal cord injuries.

"To me, it's one medicine. It always has been," writes veterinarian Stephen Withrow on the website for the Flint Animal Cancer Center, one of the world's largest, which he founded at Colorado State University. "One medicine. One cancer. One cure."

But selling this to funding agencies and industry has been difficult, he says, "convincing big drug companies that we

have relevant models that can be studied so much cheaper than human trials." There's also a risk that any adverse event that might be species-specific — "on rare occasions," he says, "cats don't behave like people" — would slow down progress on human drug development.

So labs continue to use mice — not sweet, mixed breed family dogs — for research. Withrow says there's still a role for rodent research. But, will our sensitivities to household pets hold us back from helping them, and ourselves?

The thing is, when researchers succeeded in mapping the first full genome of a dog in 2005 — Tasha, a female Boxer — they discovered humans share more of their ancestral DNA with dogs than with mice.

In fact, studies suggest that 85 per cent of drugs that appear promising when tested on the lowly lab rodent fail spectacularly when moved into humans. Of those that make it to Phase III — the final and priciest pre-licensing phase — only half are ever approved. Cancer drugs are the ones most likely to flop.

"Crucial genetic, molecular, immunologic and cellular differences between humans and mice prevent animal models from serving as effective means to seek for a cancer cure," McMaster University researchers wrote in 2014 in the *American Journal of Translational Medicine* about the limits of animal models "to mimic the extremely com-

pathogens that might trigger mutant cells that morph into cancer. Dogs are genetically diverse, just like humans, and have intact immune systems. Companion animals also develop tumours naturally and spontaneously, the same way we do. Some shared tumours — osteosarcoma, or bone cancers, mucosal melanoma, non-Hodgkin's lymphoma, bladder cancer — can be so functionally identical it's hard to know "dog" from "human" when looking at a biopsy.

Given the leap between mice and humans, the thinking now is, "maybe there's a better stepping stone," says Brian Lichty, of McMaster University's Immunology Research Centre, who is collaborating with Ontario Veterinary College (OVC) researchers testing a breast cancer vaccine in cats.

The cardiovascular systems of dogs and people are also remarkably similar, veterinarians say. Canine dilated cardiomyopathy, a deadly disease that causes the heart to weaken, dilate and swell like a balloon near bursting can lead to congestive heart failure. DCM is the second most common form of heart disease in dogs — and the third most common in humans.

Yet dogs age and die five to eight times faster than humans, meaning the outcomes to studies testing new therapies can be known that much sooner, and at far less cost.

All this may give some animal lovers pause. "We understand why people

Vets are collaborating with researchers in human medicine to study the genetics of a fatal heart disorder shared by dogs and humans. They're working on epilepsy, and stem cell therapy for spinal cord injuries.

plex process of human carcinogenesis, physiology and progression." Dogs and humans, on the other hand, co-evolved. We live in the same homes, not sterile cages, we breathe the same air and are exposed to the same pollutants and

may have this visceral and immediate reaction (to comparative medicine)," says Dr. Alka Chanda, chief of laboratory case management for PETA. In June, PETA supporters, wearing cat masks and crammed into cages, protested outside

the New Jersey headquarters of three drug companies that do business with a contract testing lab PETA has accused of violating animal cruelty laws.

But while her organization is categorically opposed to experimenting on dogs and cats in labs, these animals are not being used as “test tubes with tails.”

In the past, Withrow said in an interview with the Post, if a dog had cancer the most a vet could offer was cortisone, palliative care of some kind, and a one or two month shot at survival.

“The increase in the pet animal-human bond raised pets almost to the level of children,” however, Withrow says. People wanted — and those who had the wherewithal to pay hefty sums for it — whatever it took to keep their pets alive. “And so we raised the bar.”

Today, he says, “when I do these major surgeries — brain cancer, lung removal — I need critical care for these patients to survive, so chest drains and pain management, antibiotics, blood transfusion, anesthesia. All the supportive stuff came along at the same time.”

Dr. Len Lichtenfeld, deputy chief medical officer for the American Cancer Society, says dogs with cancer are treated as compassionately, maybe “sometimes even nicer” than people. “Nobody is taking a dog and putting him in a kennel in a room somewhere, never to be seen again, and experimenting on them,” he says. “These are pets that are getting genuine care.”

His own dog, an 11-year-old golden retriever, died of cancer last year, only weeks before he spoke at a U.S. National Academy of Medicine workshop on comparative oncology.

“Has she been out to pee? I sound like such a mom.”

Dr. Fiona James bends down to stroke Vallie, a “Shorkie,” or Shih Tzu-Yorkie mix. Vallie has been having seizure-like episodes for more than a year. She sometimes goes limp, like a noodle, other times rigid and dazed. “You can call her name, but you can tell she’s not with it,” her owner, Cheryl Parker, says.

Today, Vallie is lying on a blanket, James, her residents and students huddled in a circle around her, their heads nearly touching. “There’s no personal space in neuro,” James quips as she inserts the first of 15 electrode needles into Vallie’s scalp, just beneath the skin. When the dog flinches with the first poke, then



TWO-YEAR-OLD BABY IS CARRIED IN FOR HER RADIATION TREATMENT AT OVC.

the second, James orders “happy juice,” a quick-acting, but also quick-reversing sedative. “She’s conscious,” James says, as the team resumes attaching the electrodes to Vallie’s scalp, cheekbones and the base of her ears. “She just doesn’t care.”

These electrodes will feed brain wave data wirelessly to a camera and laptop. James has created an EEG backpack worn by the dogs, modified from those worn by children, that allows the veterinary neurologist and professor in the OVC’s clinical studies department to monitor a dog’s epilepsy while it is moving, even chasing a ball across a field, instead of trying to diagnose epilepsy with the dog heavily sedated or under anesthesia — which can abolish the very behaviours, the twitches or seizures, she’s trying to catch.

Epilepsy is five times more common in dogs than in people and affects many types of breeds. The classic seizure for a dog is a generalized tonic clonic seizure. But dogs, like humans, also suffer absence seizures, where they blank out briefly, or partial seizures, “where you might have a little twitch, similar to the twitch you might get in an eyelid when you get tired and stressed,” James explains. It can be difficult to distinguish these seizures — like the Boxer James once treated who would shake his head vigorously from side to side — from a behavioural issue, like an obsessive-compulsive disorder.

Working with her predecessor, Dr. Roberto Poma, James decided to see whether they could record animals awake. “And we did that with a little Chihuahua who wore the cables when he was confined to a baby crib.”

His nose twitches turned out to be absence seizures, the first time such seizures were recorded in a dog. After their paper was published, in 2010, James wondered, “Maybe we can go one step further. Maybe we can cut the cable.”

She looked to the Hospital for Sick Children in Toronto, working with researchers in pediatric epileptology. She got a grant, and started recording brain activity in dogs suspected of having epilepsy. “They taught me a lot,” James says of her collaborators in

human child neurology at Sick Kids. Now she’s giving back. Working with the mobile backpack on Rhodesian ridgebacks, James and an international team from Canada, Germany and Finland have discovered a new gene mutation in dogs that may help better diagnose and treat myoclonic epilepsy, one of the most common forms of epilepsy in children and adults. The disease causes rapid, jerk-like movements of the face, limbs or muscles, like the sudden spasms that jolt us awake at night.

...much of the research here would be impossible without funding from OVC Pet Trust, which has raised more than \$35 million over the past 30 years.

Dr. Lynne O’Sullivan is also part of critical discoveries in “translational” medicine bridging humans and man’s best friend. The day we visit, the veterinary cardiologist is performing an ECG on Maddie, a three-year old golden retriever and service dog for people with anxiety and panic attacks. Maddie has had a heart murmur since puppyhood. O’Sullivan is checking for leaky valves, turbulent blood flow or congenital disease. Maddie is panting heavily, a sign she’s nervous.

“You can relax Maddie, you don’t have to work right now,” O’Sullivan says softly in the darkened room as she moves the transducer around the dog’s chest.

O’Sullivan is an expert on dilated cardiomyopathy, or DCM, a disease that causes the heart’s main pumping chamber, the left

ventricle, to become dilated and baggy. The heart muscle becomes weak and flabby and struggles to pump blood around the body. In dogs, like people, it causes coughing and difficulty breathing from fluid retention.

Recently, O’Sullivan collaborated with researchers at the University of Washington, providing heart muscle samples from dogs that have died of DCM. The Washington team has identified a molecule involved in muscle contraction. In heart cells from dogs with DCM, it restored normal function. The same molecule improved muscle function in human cells.

For all this progress, though, it’s comparative oncology that holds out the most hope. Despite hundreds of billions of dollars of research worldwide, cancer still ranks among humanity’s most lethal killers.

“These people who are looking for breakthroughs aren’t interested in whether the breakthrough comes from a dog or a zebra fish,” Dr. Larry Glickman, professor emeritus at Purdue University said in a PBS documentary on comparative oncology released last year. “Just give us something we can work with that will help speed up the process of drug development, which is so long and expensive.”

The OVC in Guelph is among the leaders in animal-to-human medicine and the only international member of a U.S. National Cancer Institute consortium of comparative oncology trials. The Mona Campbell Cancer Centre for Animal Cancer, which opened its doors five years ago this month, is where most clinical trials take place. There are vets, pain specialists, anesthesiologists, technicians, interns; a human-sized linear accelerator, chemo and oncology wards, and a tumour tissue bank with 18,000 samples.

The college offers advanced cancer surgery — among other feats, Dr. Michelle Oblak is removing tumours burrowed deep into the brain cavity and rebuilding skulls with titanium mesh instead of hoping muscle and skin grows a flap over the missing scalp. Vets are also testing treatments for the same bone cancer that killed Terry Fox, and immune therapy for melanoma.

VALLIE UNDERGOES AN EPILEPSY STUDY IN OVC'S NEUROLOGY UNIT.



Dogs and cats are the most common patients to come through the doors, but the centre has also treated horses, rabbits, ferrets, and birds and even bearded dragons.

In his lab at the centre, veterinarian Tony Mutsaers is working on identifying biomarkers for targeted drugs and metronomic chemotherapy, which involves treating tumours with lower doses of newer, more precise drugs, with no break period.

"Chemo in people, generally speaking, is 'Give as much dose as you can without killing the patient, take an obligatory break where the tumour can potentially rebound, and then do the whole thing over again.'" He's seen first-hand the unforgiving impact of cancer on pets. He once had a cat named Wilson, a black-and-white haired domestic that arrived through animal control during his first week in practice in Newcastle, Ont., who died of oral squamous cell carcinoma. "When cats decide not to eat anymore, they just decide not to eat," he says. The disease, he adds, isn't altogether different from oral squamous cell carcinoma in people, minus the smoking as a risk factor.

Still, the prevalence of certain cancers among pets and humans is different. Humans tend to get carcinomas, tumours that arise from the epithelial cells like prostate, lung and breast cancers. Dogs and cats tend to get sarcomas, tumours that arise from tissue like bone, muscle, cartilage and fat. "And so you could say, well, that means the dog is not a useful model for human disease," says Brenda Coomber, co-director of the Institute of Comparative Cancer Investigation at the OVC.

But as she points out, for those people who do have sarcomas (1,255 Canadians were diagnosed with soft-tissue sarcomas in 2013, according to the Canadian Cancer Society), "we haven't really had anything better to offer them in the last 30 or 40 years. And it turns out some of the pathways that are disrupted in some of these tumours are not unique to sarcomas."

Comparative oncology is already bearing fruit: Last year, the U.S. Food and Drug Administration fast-tracked an immunotherapy vaccine for osteosarcoma after a study in dogs showed those treated with the vaccine had a median survival of 956 days — double the 423-day median survival given the standard treatment of amputation and chemo alone. And while vets have had to borrow from human oncology — using their chemo drugs, adapting the doses — drugs first tested in dogs are now being used on us. Testing Imbruvica on dogs gave the drug company behind it the confidence to move into human trials. It is now used to treat people with certain leukemias and lymphomas.

Funding is catching up as well. The trial testing genetically modified viruses to attack mammary tumours in cats was supported by money from the Canadian Breast Cancer Foundation. The Terry Fox Research Institute is funding a vaccine trial for canine osteosarcoma. And much of the research here would be impossible without funding from OVC Pet Trust, which has raised more than \$35 million over the past 30 years.

"One of the fundamental challenges facing us in human oncology is the fact that we are learning so much more about cancer — the structure of cancer cells and how they behave," says Lichtenfeld, of the American Cancer Society, but there aren't enough people enrolling in studies of experimental drugs.

"By including our pets in clinical trials, we might get some very valuable clues," he says, clues that can never come quickly enough. Bosco's people are certainly hoping for time. After six months of chemo, he's doing well, the early fatigue and weight loss no longer an issue. Tests have shown the cancer seems to be in remission, but the OVC is checking him monthly.

At 85 pounds, he's a large dog. When Alex and Lynda watch television, Bosco rests his huge head in their laps, and looks up at them, with his "soulful eyes," Lynda says, "as if begging us to suspend our disbelief" and let him climb into their laps like a purse dog. He likes raw Brussels sprouts and ripe bananas and can't settle down at night until everyone is home.

The family has been told that the median life for Bosco once cancer treatments are over is 12 months. "So, half live longer than a year, half live less," Lynda says. "We're really hoping he pushes that year."

But even if "biology and the gods" should will that he doesn't, she says, "how cool that humans and dogs developed this relationship 30,000 years ago, and they might end up saving our lives?" 🐾

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RESEARCH SPOTLIGHT

THE VITAL ROLE OF NUTRIENTS IN MY PET'S DIET

Recent pet food recalls for insufficient dietary thiamine across the globe and an increase in interest in homemade diets for pets has inspired a research team at the Ontario Veterinary College (OVC), University of Guelph to delve deeper into learning why and how the vital nutrient is critical for companion animals.

Thiamine, also known as vitamin B1, is an essential dietary nutrient in dogs and cats and a crucial source of energy for pets. OVC Pet Trust-funded researcher and board-certified veterinary nutrition specialist Dr. Adronie Verbrugghe is leading research at OVC that is studying the importance of thiamine in pet health.

"Dogs and cats cannot naturally produce thiamine, so they require it to be a part of their diet," Verbrugghe says. "Lack of thiamine over long periods of time can lead to poor health for your pet and can be fatal if low thiamine levels are not identified and reversed," she adds. Initial clinical signs of low thiamine levels can include vomiting, weight loss, lack of appetite and fatigue. However, when thiamine intake is not corrected, nervous system damage and cardiovascular signs will occur. Signs can worsen rapidly and lead to death in cases of severe deficiency.

Verbrugghe's team is studying thiamine levels in healthy dogs and comparing their findings to critical, hospitalized dog patients in OVC's Intensive Care Unit (ICU). In a separate study the team is also looking at thiamine levels in pet food that is frozen versus room temperature to determine which food storage method is ideal to preserving thiamine over time, ensuring pets are receiving the appropriate dose in their diet.

The humanization of pets, a push towards "natural" products and pet food recalls are a few of the reasons pet owners are moving away from commercial balanced diets, Verbrugghe says. "Homemade or raw diets that are not complete and balanced puts pets at risk of not receiving the daily levels of nutrients they need." Pets who are in a vulnerable life stage, such as growing animals, and pets during gestation and lactation, are more at risk. Verbrugghe says there have been reports of dogs and cats developing signs of thiamine deficiency as a result of being fed unbalanced homemade diets.

How can pet owners ensure they're minimizing the risk of poor dietary thiamine intake in their dog or cat? "Feeding conventional diets that contain a statement on their pet food label declaring that they are complete and balanced for the appropriate species and life stage is essential," she says. "Your veterinarian is your best resource." 🐾



PET FOOD FACTS

Pet owners can search for the AAFCO statement on pet food labels. In North America, many commercial pet food manufacturers follow Association of American Feed Control Officials (AAFCO) guidelines when formulating diets, which are based on recommendations for adequate intake and recommended allowance by the National Research Council (NRC). While it's an American standard, many pet food companies in Canada follow AAFCO.

It's beneficial to keep the bag. Veterinary and higher-quality pet store brand food companies invest into the packaging of their products. "Most pet food stays fresher for longer if it's kept in its original food bag. Research has shown vitamins also remain intact in higher concentrations," Verbrugghe says.

Nutrients on the pet food label can be confusing. If you select a pet store brand of food, most labels provide a minimum and maximum level of nutrients. Since nutritional content can vary from batch to batch, and ingredients may occasionally be switched, there can be differences. Diets sold by veterinarians are formulated more precisely and contain the exact same nutritional content from batch to batch, which is why this type of pet food is usually used in treating pets who have a disease or condition with specific nutritional requirements.

The ingredient list on a pet food label can be manipulated. Ingredients in pet food is usually listed according to weight, but sometimes manufacturers may split up protein or carbohydrate content to adjust it. It's important to check ingredients when you have a pet with allergies.

Talk to your veterinarian for guidance and support. Your family veterinarian can help ensure the food you've selected for your pet's diet is complete and balanced for their species and life stage.

Decoding Your Pet's BODY LANGUAGE



Facial expressions. Posture. Gestures. Eye movement. Touch. The use of space around us. From researchers to career coaches, magazine articles to blog posts, modern science tells us that it is often what we don't say that can leave the greatest impression, but have you ever wondered what you can understand from your own pet's body language? Body language is the process of non-verbal communication through conscious or unconscious movements, gestures or mannerisms. While scientists have been observing human body language in one form or another for centuries, it is only recently that researchers have started to investigate what body language means for pets and their behaviour.

Lee Niel specializes in animal behaviour and welfare at the Ontario Veterinary College (OVC), University of Guelph.

She is studying what dog owners understand about their pet's behaviour through their body language, and more specifically, what we can learn and how we can use dog body language as an indicator of fear and aggression.

"Dogs, like people, can react very differently to certain situations," Niel says. "We see this all the time in everyday life: some dogs may be relaxed and comfortable when company is over or when they interact with other dogs and people they don't know in off-leash parks, others may not. Dogs that experience fear in response to regular activities are more likely to have reduced welfare, so it is important that owners are able to recognize behavioural signs of fear and help their dog avoid situations that are problematic."

Not only is fear a threat to your dog's mental well-being, but it can also put them at a higher risk of developing serious behaviour problems such as aggression. Niel says aggression often has a significant impact on the human-animal bond, and can alter the way we interact and connect with our pets. It can also pose a significant safety concern and sometimes lead to surrender, or even euthanasia, of the animal.

"Understanding animal body language allows pet owners to recognize their pet's patterns and needs," Niel says. "It allows owners to provide an environment that reduces stress and fear and gives



FEAR

- 🐾 Panting, barking, whining, exaggerated yawning, lip licking, flinching, trembling, lifting a paw, avoiding eye contact, and attempting to hide, escape or retreat.
- 🐾 Crouched posture, ears back and tail tucked.
- 🐾 If a dog is panting and they are not overheated or have not just exercised they are likely stressed.

them the opportunity to avoid potentially dangerous situations for pets and people."

While understanding pet body language is important, recent research results from Niel's group revealed that there are certain fear behaviours that are challenging for many owners to recognize, while others are more reliable, such as body posture, ear and tail position, and relatively subtle behaviours such as lip licking and avoiding eye contact. The research also found that most dog owners were good at rating dog fear and aggression, but surprisingly, a relatively high percentage were unable to correctly identify examples of moderate to severe fear and aggression. Niel says further research is needed to understand whether these owners are truly unable to identify dog fear and aggression, or if there is also some reluctance to negatively label dogs. This may be particularly true for dogs that show threatening behaviour without actually trying to bite – Niel's



FEAR VS. AGGRESSION

While understanding pet body language is important, recent research results from Lee Niel's team at the Ontario Veterinary College revealed that there are certain fear behaviours that are challenging for many owners to recognize. Niel says, "if you are concerned that your dog is overly fearful or showing signs of aggression, consult your veterinarian."

study also showed that more than 25 per cent of participants were unable to correctly identify dogs showing threatening behaviour. But Niel says fear in pets can unexpectedly turn into aggression, and that reading these signals is key to adapting to your pet's needs.

"If you think about human behaviour we know that people are different when it comes to the activities they like to be involved in, and their thresholds are different for certain stimuli like noise and activity. Some people may enjoy attending a noisy music festival, or interacting with active children, some may not, and dogs are the same," Niel explains. "In some cases a dog might be exposed to a number of triggers that the owner is unaware of, which results in them feeling threatened and responding aggressively to protect themselves. However, if the owner was able to recognize the subtle, early signs of fear the situation might have been avoided before it escalated."

The ultimate goal of Niel's work is to prevent and reduce fear in dogs by teaching pet owners to understand their animal's needs and recognize when their pet is showing signs of fear and potential aggression. For example, if a child approaches a dog and a pet owner can

VS

AGGRESSION



- 🐾 Warning signals include: stiff body posture, growling, teeth baring and changing from avoiding eye contact to making direct eye contact.
- 🐾 Never punish a dog for showing these important signals. If the signals disappear, dogs can bite seemingly without warning.

identify early physical signs of fear, they can make adjustments, change the environment and make it a safer, more positive experience for their dog, the child and themselves.

"Pet owners can use body language signals to avoid problems early. The ability to recognize how your dog reacts in certain situations is key." 🐾

Research TAILS

What about the Wag?

A wagging tail is often poorly misunderstood. Sometimes when a dog is fearful, they will wag their tail. Quite often, fearful dogs have a slow, low tail wag. If the dog is also crouched or tense and showing other signs of fear, a wagging tail does not indicate happiness, but rather that the dog is likely scared. A happy dog wagging its tail will be more likely to have a loose, wiggly body, with a neutral body posture, Niel says.

The Feline Fuse

Similar to dogs, fearful cats often show an arched back, a tucked tail and ears that are pulled sideways or back. Cats typically have shorter fuses in the fear department when compared to dogs, and signs of aggression include direct eye contact, hissing and growling. Niel says a happy and engaged cat will typically have a neutral and relaxed body position, with their ears forward and tail in an upward position. However, studies assessing cat fear and aggression have received much less attention than that of dogs. In upcoming research Niel and PhD student, Courtney Graham, will be examining behavioural indicators of fear in kittens, and then assessing the effects of early kitten management on fear and aggression in adult cats.

Early exposure to a variety of people, animals, environments and household stimuli is thought to be important for preventing fear in cats and dogs. Unfortunately, cats don't get exposed to the same stimuli as dogs. Niel says, "we still have so much more to learn about cats."

IN PHOTO: STEM CELLS THAT HAVE BEEN MANIPULATED TO GROW INTO JOINT CARTILAGE IN KOCH'S LAB AT THE ONTARIO VETERINARY COLLEGE, UNIVERSITY OF GUELPH.

ON THE FOREFRONT OF VETERINARY MEDICINE

Exploring regenerative medicine to enhance animal and human health

Harnessing the power of stem cells has been a hot topic for a number of years in the scientific community.

Stem cells have the potential to be transformed into specialized cells that can act as an internal repair system or treatment for damage within the body. The National Institutes of Health (NIH) describes the potential benefits of stem cells in medicine: "Stem cells are distinguished from other cell types by two important characteristics. First, they are unspecialized

cells capable of renewing themselves through cell division, sometimes after long periods of inactivity. Second, under certain conditions, they can be activated to become tissue or organ-specific cells with special functions. In some organs, such as the gut and bone marrow, stem cells regularly divide to repair and replace worn out or damaged tissues. In other organs, however, such as the pancreas and the heart, stem cells only divide under special conditions."

A recent landmark veterinary study showed stem cells can be effective as a drug booster to help fight and cure drug-resistant infections in dogs. Stem cell therapy has also been used in cats to treat painful swelling caused by gingivitis, a type of gum disease. The potential to speed up healing and cure disease is the main motivator for scientists to explore the area of regenerative medicine, the process of replacing, engineering or regenerating cells, tissues or organs to restore or establish normal function. This multidisciplinary research field combines developmental biology, materials science, cell biology, engineering and medical knowledge for treatment of various diseases and disorders.

Dr. Thomas Koch, an associate professor in the Ontario Veterinary College's Department of Biomedical Sciences is at the forefront of veterinary and regenerative research in Canada. He is the Director of the Comparative and Translational Regenerative Medicine Network (CTRMN) at the University of Guelph. From human and animal health to food science, molecular, cellular and integrative biology to engineering, this network promotes collaborative work among 19 researchers that are investigating the emerging areas of stem cells, tissue engineering and regenerative medicine.

The main goal of the CTRMN is to further the development of new treatment opportunities that presently lack sufficient therapy options in humans and animals.

As a veterinary researcher, Koch has dedicated his career to studying regenerative medicine. Some areas in the body, such as the liver, have high regenerative potential. In comparison, joint cartilage does not regenerate. Koch's research is focused on joint health.

"Cartilage, a connective and cushioning tissue found in many areas of the body, is unique from other organs or systems in the body; it has an extremely low cell

count, and it's a type of tissue without nerves or blood supply. When damage occurs in cartilage, there isn't a lot of structure for cells to help it heal," Koch explains. "Since cartilage generally wears over time, injury tends to go unnoticed until patients experience joint pain. Once pain occurs it is often too late to reverse the disease or the injury," he adds.

Like humans, dogs, cats and horses suffer from a number of degenerative diseases such as osteoarthritis (the weakening of joint cartilage that leads to pain, stiffness and swelling) and elbow dysplasia (abnormalities with the elbow joint) with limited treatment options. That's where stem cells come into play.

Mounting evidence suggests regenerative medicine can offer beneficial, sometimes even curative, results for specific diseases and conditions in our pets.

"Manipulating stem cells can allow researchers to form different tissues under specific laboratory conditions," says Koch. "This sets the stage for the possibility of engineering tissue to treat disease or injury."

Koch's lab is focused on exploring healthy and diseased states of joint cartilage from an evidence-based, scientific approach. While some cell-based therapies currently exist in the veterinary community, his goal is to determine: the best source and type of stem cells; the culture conditions of stem cells and how to direct their specialization into cartilage cells; and ultimately how

to improve joint disease outcomes by developing better diagnostic procedures and treatment possibilities. His research involves engineering tissue using stem cells in his laboratory. The next goal for Koch is to take his bench research into a range of clinical trials.

The path from the laboratory to the clinic is often complex in many areas of medicine, and regenerative medicine is no different.

Koch and Dr. Tom Gibson, a small animal surgeon and certified specialist in veterinary sports and rehabilitation at OVC, are working together to find new solutions for elbow dysplasia in dogs. Common in larger breed dogs, elbow dysplasia is a lifelong disease for which there are currently very few treatment options. The disease often develops very quickly and can affect dogs at a young age. Koch and Gibson are collaborating with human health researchers at the University of Toronto to investigate a method to coax cells to become anti-inflammatory, a treatment that is currently being used in clinical trials for humans. Koch and Gibson hope to translate these findings into a clinical trial to help dogs.

On top of his work at OVC, Koch is the only veterinarian who sits on the Ontario Institute for Regenerative Medicine's (OIRM) council, which is comprised of researchers and specialists working primarily in human regenerative medicine across the province. Much of Koch's research is recognized as a model for human disease.

"Mounting evidence suggests regenerative medicine can offer beneficial, sometimes even curative, results for specific diseases and conditions in our pets," says Koch, acknowledging the area has the potential to transform veterinary medicine as we know it today. "Here at OVC, we have a unique opportunity to contribute to this evolving field of health that may benefit both animals and humans alike. The possibilities are so exciting." 🐾

Decreasing your pet's risk of **STROKE**



According to the Ontario Stroke Network, stroke is the leading cause of adult disability in Canada and the third leading cause of death in humans – but do strokes affect companion animals and what are the signs and causes of stroke in pets?

“Strokes appear to be less common in pets, but because their consequences can be fatal, it is important to detect at-risk patients and treat them preemptively,” says OVC Internal Medicine Resident Dr. Sophie Saati. A stroke happens when a blood clot forms in a blood vessel, cutting off blood flow in the brain. Abnormal blood clot formation in pets appears to happen more commonly in other parts of the body, such as the lungs, heart and kidneys. “Depending where the blood clot occurs, clinical signs will differ. For example, neurological deficits if it happens in the brain, and difficulty breathing if it happens in the lungs,” Saati explains.

Abnormal blood clot formation can be common with certain diseases. “Conditions that can be associated with this include cancer, heart diseases,

autoimmune diseases, endocrine diseases (hormone disorders) and some types of kidney and intestinal diseases.” While the appearance of abnormal clotting in pets varies widely, some diseases, such as immune-mediated hemolytic anemia, a life-threatening disorder where a dog's immune system destroys its red blood cells, have a high mortality rate (about 50 per cent) and up to 80 per cent of those deaths can be attributed to abnormal blood clot formation.

For this reason, Saati focused her graduate student clinical research at OVC on platelet function tests. Platelets, one component in the blood responsible in forming clots, have their action reduced by some blood thinners, which decreases the chance of blood clot formation and the risk of stroke.

Saati's study examined the effectiveness of a blood-thinning medication called clopidogrel, a common drug used to prevent blood clots in both veterinary and human medicine. Saati and her advisor Dr. Anthony Abrams-Ogg suspected that some dogs may be resistant to blood thinning

medications, which may leave them vulnerable and more likely to suffer abnormal clotting if their medication isn't working properly.

“Assessing platelet function in dogs receiving blood thinning therapy helps ensure that we know the medication is working and that it is reducing their risk of suffering a stroke and abnormal blood clotting in other organs,” says Abrams-Ogg. In the past, veterinarians working in general practices have had to refer patients to academic institutions such as OVC to access platelet function tests. Saati hopes the results of her study will help implement routine blood clot function monitoring in general veterinary practice.

“One of the platelet function tests that we investigated, Plateletworks, can be performed in general practices using materials that are readily available,” says Saati. “Ideally, our research findings will increase access and availability to preventive treatments and tests for effective blood thinner treatments when pets at-risk need it the most.” 🐾

YOUR GIFTS AT WORK

Each year OVC Pet Trust invests \$500,000 in new projects and equipment to advance health and well-being for pets.

DOG HEALTH

Investigating possible causes of immune-mediated hemolytic anemia in dogs

Dr. Shauna Blois

Understand the mechanisms causing immune-mediated hemolytic anemia in dogs and other species, which will help improve treatment for this serious and often fatal condition.

Can miniature surgical instruments provide sufficient quality liver samples compared to standard-sized instruments in small breed dogs?

Dr. Brigitte Brisson

Determine if using smaller instruments can provide adequate diagnostic samples in small dogs, which may open the door to even more minimally invasive surgery in small breed dogs than what is currently possible, resulting in lower risks, shorter procedure time and faster healing in patients.

Using urea creatinine ratios as a non-invasive option to diagnose and localize gastrointestinal bleeding in dogs

Dr. Alice Defarges

This simple ratio, available in all routine biochemistry profiles, will be extremely clinically useful for general practitioners to decide when to investigate and treat patients more aggressively for gastrointestinal hemorrhage.

Accuracy of medical CT scans in dogs for creating digital models for reconstructive surgery and patient specific 3-D printed implants

Dr. Fiona James

Rapid prototyping via the translation of veterinary medical imaging to three-dimensional (3-D) printing promises a surgeon-independent and patient-specific approach in the veterinary neurosurgical field that could shorten anesthesia times considerably, improve aesthetic reconstructive surgery and revolutionize veterinary medical education through anatomically detailed recreations. This study aims to establish the accuracy of a protocol for the creation of 3-D digital models from standard medical CT scans.

Investigating non-invasive electrodes for recording brain activity in dogs

Dr. Fiona James

Confirm a non-invasive way of recording brain activity in dogs in order to improve the diagnosis and treatment of epilepsy, a common neurologic disease in dogs.

Can we make neurons from canine nasal cells?

Dr. Jon Lamarre

Develop strategies to derive stem cells from the nasal epithelium of dogs that can then be used to understand neurologic diseases. Ultimately they may also be used as “replacement” neurons to help recovery.

Improving chemotherapy treatment of bone cancer in dogs by targeting tumour acidity

Dr. Anthony Mutsaers

This research investigates the potential anti-cancer effects of a drug normally used to treat heart failure in dogs. If successful, this research may lead to a new combination treatment approach that will improve the long term survival of dogs treated with chemotherapy for bone cancer and possibly other cancers.

Investigation of a new agent for identifying lymph node metastasis in dogs with cancer

Dr. Michelle Oblak

The ability to better detect metastatic disease in patients with cancer could substantially improve both surgical success and outcomes. Using a new agent that has been developed to improve visualization both before and during surgery, this study will assess the ability of this agent to identify tumour-draining lymph nodes in dogs.

3-D printed surgical cutting guide development and testing for skull surgery in dogs

Dr. Michelle Oblak

Develop and test a surgical cutting guide for skull tumours in dogs. Learnings from this study may be used to help future clinical patients, allowing OVC to offer cutting-edge surgical techniques and technologies that are not available anywhere else for veterinary patients.

Investigating routinely prescribed pain medications on eye health in dogs

Dr. Chantale Pinard

Enable veterinarians to better understand the impact of routinely prescribed pain medication on eye health of dogs, especially dogs with eye diseases.

Measuring disease markers of dog bone cancer using routine blood samples

Dr. Geoffrey Wood

Routine, non-invasive blood samples have the potential to provide a wealth of information about how aggressive bone cancer will behave in dogs. Measuring specific molecules in blood will help to diagnose and screen dogs for bone cancer and predict how well they will do following therapy.

CAT HEALTH

The utilization of a novel virus as a vaccine to treat cats with breast cancer

Dr. Paul Woods

This study could provide evidence for the use of a novel new therapy involving maraba virus to vaccinate the immune system of cats against breast cancer to prevent recurrence of cancer following surgical removal. In future, other cancers (e.g. lymphoma, osteosarcoma) and species (i.e. cats and dogs) could be treated with the virus vaccine.

DOG & CAT HEALTH

Using DNA sequencing to determine if the microorganisms in the urinary tract are different in pets who have kidney stones compared to healthy pets

Dr. Alice Defarges
If a unique urinary microbiome is identified in dog and cat stone former patients, manipulation of their urinary microbiome might represent a novel preventive treatment for stone formation.

An investigation of pet owner perspectives of companion animal euthanasia practices and grief support structures

Dr. Deep Khosa

Inform and design a set of evidence-based guidelines and recommendations to help veterinarians navigate the often challenging and impactful process of companion animal euthanasia, and grief support for pet owners. These guidelines aim to benefit all stakeholders in the veterinarian-client-animal relationship, with the goal of providing resources to support pet owner grief recovery, loyalty and retention to practice.

Sterility testing of materials used in 3-D printing of patient specific surgical tools

Dr. Alex zur Linden

Build a solid foundation for a collaborative group of OVC researchers to explore innovative uses of customizable rapid prototyping for the treatment of various companion animal conditions. Testing the sterility of material used in rapid prototyping is the key first step before safely using this cutting-edge technology to improve the health and well-being of companion animals.

AVIAN EXOTIC HEALTH

Minimally-invasive spay in companion rodents: initial assessment

Dr. Hugues Beaufrère

Offer a less painful and less invasive option for routine spays of small rodents and to further extend the range of possibilities of minimally invasive surgeries to companion animal exotic species.

EQUIPMENT

Ultra Cold Freezer for Long-Term Preservation of Clinical Research Samples

Dr. Shauna Blois

Ultralow temperatures allow biological samples to remain viable for research for many years, allowing researchers to bank samples for future projects and clinical trials. Research performed on these banked samples can potentially offer insight into new diagnostics or treatments for disease in pets. This freezer will help support the ongoing clinical research efforts in these areas by the Small Animal Internal Medicine and Emergency-Critical Care services.

When is it “time”?

By Dr. Renee Fleming, DVM, OVC Class of 2004



I remember the day we brought Emma home. I was in my first year of veterinary school at the Ontario Veterinary College when my husband John and I welcomed our beautiful, wrinkly, snorting (and sometimes stinky!) English Bulldog into our home and hearts.

After surviving the challenges of puppyhood with my Princess Emma, it's amazing how soon you forget it all. I almost forget about the beautiful pair of boots that she destroyed; the remote control she chewed (and after an urgent trip to the after-hours emergency veterinary hospital, I discovered NOT the batteries along with it!); the many bottles of carpet cleaner we went through. It is all worth it in the end.

As they say, the years go by quickly. When Emma turned eight, she began showing signs of arthritis. At age 11, she found herself not only dealing with a new puppy, a wiggly and active French Bulldog named Oliver Frances, but being awoken from her slumber by a crying and demanding newborn baby, Ewan. When I was feeding my son, Emma would sit at my feet in the nursery while I rocked him back to sleep. She took these changes in stride and has learned to tolerate, if not love, her new housemates. The dog who used to avoid children will now toddle over to lick my son on the face or see if the object he is holding in his hand might just be a tasty treat.

More recently, I lost my dad to cancer. I was fortunate to have been able to be the care provider for my dad during his palliative stage, and he passed away in my arms while Emma snored away on the floor below. My dad, like many cancer patients, suffered greatly in the weeks prior to his death. Looking back to when I brought Emma to meet mom and dad for the

first time – my wrinkly, wiggly canine bundle of joy – I never dreamt that I'd say goodbye to my dad before her. One thing that brings me comfort when I think about saying goodbye to my Emma one day is knowing that I can give her a beautiful and peaceful gift when her time comes. I can let her go in peace, surrounded by those who love her, instead of watching her deteriorate and even suffer. I tried my very best to make my dad comfortable – I diligently gave him his prescribed pain medication, wiped his face, wet his dry mouth – but I know he suffered. I don't want Emma to suffer like that.

As a veterinarian, I educate my clients so that they can also make informed decisions about their pets' well-being. Having to coach a family about making the decision to say goodbye is hard – harder than the euthanasia itself. Everyone has different beliefs. Euthanasia is not accepted in all faiths, and many people have a very difficult ethical struggle about the end of life. I can't speak for what is right and wrong for everyone – only for what I believe and practice in my daily life. I don't judge my clients as they make their journey through this emotional process. Sometimes the decision is easy. The hardest is when the decision is a bit of an 'unknown', which is often the case with a senior pet that is declining but may not be 'sick'.

Initially, neither John nor I wanted to say the word euthanasia. Emma's time hasn't come yet. She still greets us at the door (not every time, but some of the time). She still loves a good bum scratch. She loves to stretch out on the grass in the sunshine. She 'occasionally' loves her little fur brother Oliver and will still initiate play with him. She still gets very excited to see my mom when she visits.

As I finish writing, Emma is still at my feet, although she's now happily chomping away on a stuffed Kong. It's not her time today and hopefully not tomorrow or next week. John and I notice her really good days, and take note of her not-so-good ones. I spent a fantastic day this winter with her and a local dog photographer for what she calls an 'honour session'. We captured Emma's personality and "adore-abullness" and did an outdoor hike along the trails. I carried her when she needed it, and we completed our adventurous trek together. My family will miss her terribly when her time comes, and I often tell my little Frenchie that he has big paws to fill. My son's first word was Emma – although I pretended to hear Mama; it sounds so similar after all. I've been sneaking her some extra Kongs, a few more Timbits and doing my best to let her know that she is the most wonderful companion that we could ever have been lucky enough to share our lives with. And when her time comes,

As a veterinarian, I educate my clients so that they can also make informed decisions about their pets' well-being. Having to coach a family about making the decision to say goodbye is hard – harder than the euthanasia itself.

I will be the one who helps her find the Rainbow Bridge, because I owe her that much for all that she has given to our family. 🐾

Editor's note: Dr. Fleming and her family said goodbye to Emma three months after she wrote this story.



OVC PET TRUST LAUNCHES NEW SUPPORT GUIDE FOR PET OWNERS PREPARING FOR THE LOSS OF A PET

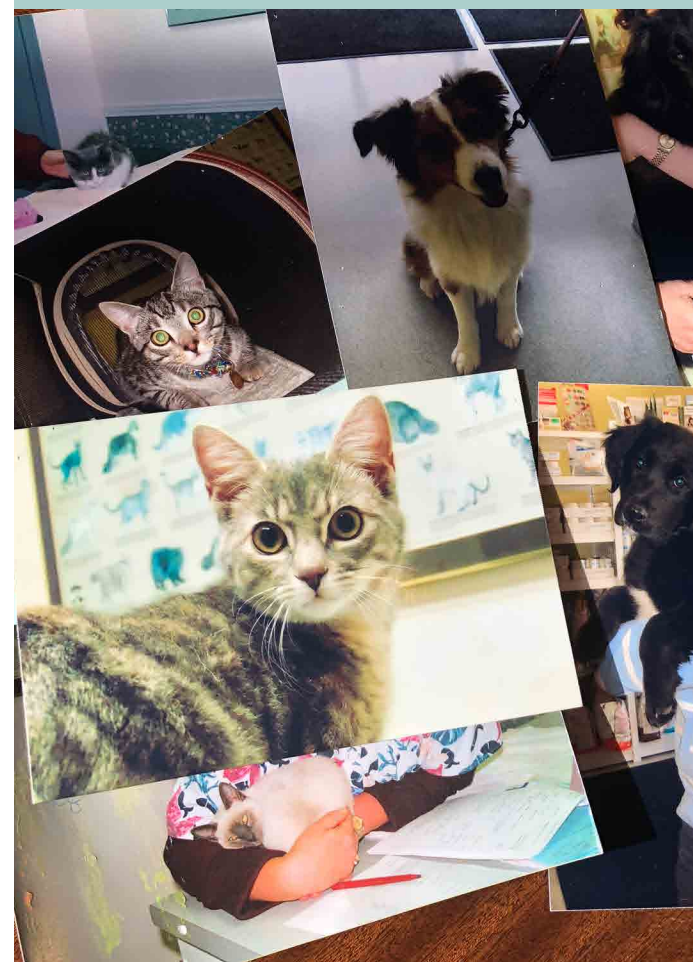
Making end-of-life decisions for your pet is one of the most difficult, challenging and emotional situations a pet owner may face over the lifetime of their beloved companion. Dealing with the loss of a pet can be stressful and in some cases extremely emotional and difficult to navigate. It may begin with receiving bad news or a life-limiting medical diagnosis from your veterinarian, or perhaps your pet is aging and their quality of life is declining, or it could be sudden with not much time to prepare at all. OVC Pet Trust's new resource may be able to help.

Also available in this series:

OVC Pet Trust: Coping with the Loss of a Pet
A Support Guide for Pet Owners

Ask your veterinarian for your FREE copy or visit:
www.pettrust.ca/petlossresources

COLBORNE STREET PET HOSPITAL GIVES BACK



The bond Dr. Joanne Olinyk shares with her clients and patients is a special one. "These may look like medical records, but I view them more as scrapbooks of memories," she says, smiling, as she sets down a stack of beige-coloured file folders on the table in front of her.

When Olinyk purchased her practice back in 1996, she bought a camera too. Whenever a new pet is welcomed into the Colborne Street Pet Hospital family, her team takes a photo of the animal. Usually it's when they're a puppy or kitten, but sometimes it will be an older pet that has come into Olinyk's care. The photo is printed and placed into the pet's medical file. When the pet dies, often many years later, Olinyk sends the owners the picture she's kept in her files with a personalized handwritten sympathy card and a copy of the Rainbow Bridge poem, a story that has gained popularity around the world and describes a paradise where many people believe pets go after they die. For some owners who may

not have had many pictures of their pet, Olinyk's tradition is particularly meaningful and special. She often hears back from her clients how comforting it is to receive a nice memory from the past after saying goodbye to their beloved companion.

Olinyk then follows up with a donation to OVC Pet Trust. She knows whenever she makes a donation through the Pet Memorial Program, she is helping to make a difference by supporting research at the Ontario Veterinary College that will advance pet health through the discovery of new preventions, diagnoses and treatments of diseases.

"I build relationships with the pets in my care and their families over the course of their life," says Olinyk. "For me, donating to OVC Pet Trust is the best way to give back and honour the life of a pet I've cared for. Supporting companion animal health and well-being helps humans and our pets. It helps all of us." 🐾

SIX DEGREES OF SEPARATION

by Suzi Beber

IN PHOTO: BB KING AND MAYA.

There has certainly been some wild and wacky weather across the country this winter, but here we are, on the cusp of welcoming another spring and the renewal that comes with this very special time of the year.

The four seasons were celebrated when Kim Denomme and her team raised \$3,700 for The Smiling Blue Skies Fund for Innovative Cancer Research in November, through the sale of a select group of paintings by Malak Tabbara, whose life was tragically cut short by cancer. Malak was a dog walker and lover and gifted artist, who had also lost his beloved dog Angie to cancer before losing his own life. For Malak, other people's "toss offs" like old dressers, became perfect canvasses to create treasures for others, and at Malak's heart, there was always the desire to give back. After losing Malak, Kim's passion for canine cancer research became a very special way to celebrate Malak's life, while continuing to make a difference in our world through her charitable work. Kim is already making plans for the next Smiling Blue Skies event in Toronto. Stay tuned.

As the end of 2017 drew to a close, some terrific fundraisers were held, both at home and across the border, helmed by amazing clubs and people including Mary Beth Konesky and the Golden Retriever Club of Western New York's Regional Specialty, Kristin Ozmun-Sipus who spearheaded a 50/50 Draw with the Golden Retriever Club of Mid-Florida, raising nearly \$4,000, and, thanks to Linda Sowerby and Tri-Mark Canine Services, their Annual Photo Day was a bigger success than ever, in part due to the wonderful addition of "Cuddles with Corbyn." Thanks too, to the Golden Retriever Club of British Columbia for their ongoing support and their generous year-end donation of \$1,000, and the Capital Comets' annual fundraising efforts, that raised \$2,000, and the Maritimes Golden Retriever Club, for their gift of \$1,329 raised through their obedience and rally trials. Lynn Warren created sun catchers leading up to this event, raising \$2,255 for a grand total of \$3,584.

New to the Smiling Blue Skies fundraising family is gifted Vancouver Island photographer, Wendy

Suzi Beber founded The Smiling Blue Skies® Cancer Fund in 2001, after losing her Golden Retriever, Blues, to lymphoma. To honour his memory, and in gratitude for the care he received at OVC, Smiling Blue Skies has raised more than \$1.8 million to support Pet Trust's quest to find more and better ways to deal with canine cancer.

Tisdale, who shared her beautiful holiday gift card designs and anyone who stopped in at Sidney Animal Hospital had the chance to buy them. Thanks too to Tricia Soulier, owner of Pawsitive Approach Pet Services for joining our Smiling Blue Skies family.

Tofino Soap Company's first round collaboration with Smiling Blue Skies was a fabulous success. "Kindred Spirits" HOPE candles, raised \$3,600. We are planning on bringing you more candles, and perhaps even a brand new product!

As I sign off, 2018 marks The 16th Annual Smiling Blue Skies Calgary Walk for Canine Cancer.

Stay tuned for the release of the OVC Pet Trust Smiling Blue Skies 2017 Update Report. Thank you to everyone who shares the heart of giving with Smiling Blue Skies.

Long live blue skies, where hope is a kite and dreams really do come true.🐾

www.smilingblueskies.com



About Best Friends

Best Friends is the pet magazine of the Ontario Veterinary College. It is published two times per year by OVC Pet Trust for the interest of pet owners and for those dedicated to animal health, well-being and the human-animal bond.

About OVC Pet Trust

OVC Pet Trust, founded in 1986 at the Ontario Veterinary College (OVC), University of Guelph, is Canada's first charitable fund dedicated to the health and well-being of companion animals. OVC is a leader in veterinary health care, learning and discovery for the health of all species, including our own.

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Ashleigh Martyn, Writer
Kim Robinson, Managing Director

Would you like to display Best Friends Magazine in your veterinary hospital? Do you have comments or suggestions for future articles? Would you like to reproduce content from Best Friends Magazine? Please contact the OVC Pet Trust team at ovcpet@uoguelph.ca.

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IN MEMORY

"What we have once enjoyed, we can never lose. All that we love deeply becomes a part of us." — Helen Keller

OVC Pet Trust often receives heartfelt thank you letters from pet owners whose veterinarian has made a donation in their pet's memory. Best Friends' "In Memory" column was created to celebrate the lives of the pets we love. OVC Pet Trust's 'Pet Memorial Program' invites veterinary hospitals and individuals to make a donation in memory of a pet. Memorial donations help fund research and discovery at the University of Guelph's Ontario Veterinary College aimed at helping our pets live longer, healthier lives.



SULLY

Dear OVC Pet Trust,

My family and I would like to extend a very heartfelt thank you for everything you do to help pets. Without a doubt, our beloved dog Sully had almost four extra years of good quality life because of your efforts to fund companion animal health care.

In September 2013, a month after my own mother passed away and my father's cancer had flared, Sully was diagnosed with bladder cancer by our family veterinarian, Dr. Craig Storey. Dr. Storey told us about the Mona Campbell Centre for Animal Cancer Centre at the Ontario Veterinary College, and our journey began. Sully's treatment started with chemotherapy, followed by surgery which removed as much of his bladder tumour as possible. Over the next couple of years, we were fortunate chemotherapy continued to keep Sully's cancer stable. All the staff we had the opportunity to interact with were warm, caring, professional and knowledgeable. We always felt that Sully was very safe in their hands. They made us feel so comfortable at a time when we were very worried about losing our dog.

In 2017, Sully's bladder tumour began to show progression, and after many other attempts at treatments, even some palliative radiation, his cancer couldn't be stopped. Unfortunately, we had to make the heartbreaking decision to let him go. The day we put Sully to rest we had a beautiful, full rainbow appear over our home.

The Animal Cancer Centre at OVC is truly amazing; from the facility itself to all of the special and compassionate people that work there. We have learned so much about cancer from our visits and how our animal companions can help us fight it in humans.

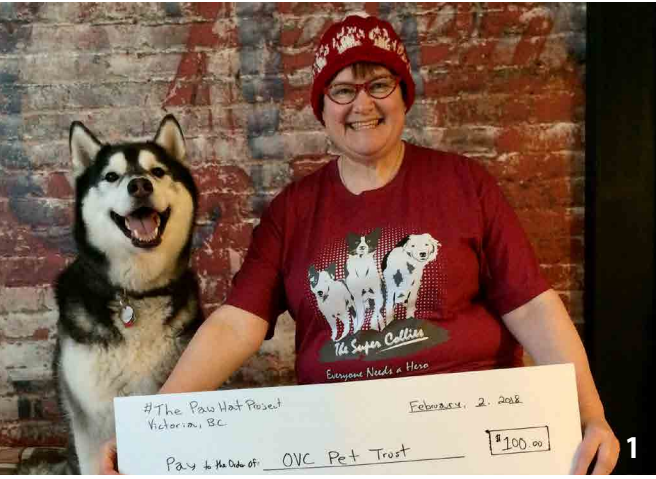
Thank you again for all that OVC Pet Trust does to advance pet health. Thank you to whomever donated the radiation equipment, and to all that have donated to cancer research and care at OVC. It is truly making a difference in the lives of pets and their people. I know it did in ours.

Sincerely,
Tammy and Rob, Tom, Dan, Christine and Colleen Black and Greg McBride (Gramps)
St. Thomas, Ontario

If you would like to share your "In Memory" story, please email OVC Pet Trust's Writer, Ashleigh Martyn, at amarty01@uoguelph.ca.

#PETTRUSTPALS

Celebrating our amazing supporters and fundraisers from across Canada! Share your event and tag your photos with #PetTrustPals on Facebook and Twitter.



1. Naomi Sanderson started **The Paw Hat Project** in fall 2017 in honour of Sara Carson and the Supercollies, raising \$1,000 for OVC Pet Trust so far. 25,000 yards of yarn have created 105 hats knitted to date.



3. University of Guelph (UofG) **College Royal** celebrated its 94th year this March. OVC's **Teddy Bear Surgery**, a clinic run by second and third year Doctor of Veterinary Medicine students was once again a big hit!



2. The 8th **Annual OTS Dog Jog** raised \$15,300 in support of OVC Pet Trust.



5. Kris Gies started his role as the interim OVC Pet Trust Outreach Coordinator (right). Photo taken at the **2018 OVMA Conference and Trade Show** along with OVC Pet Trust's Managing Director Kim Robinson (left) and Bailey Kagan (centre).



4. University of Guelph students "**Take a Paws**" from exam season with therapy dogs, a bi-annual event organized by the UofG McLaughlin Library in partnership with St. John Ambulance, the Ontario Veterinary College and OVC Pet Trust.



6. This January **Petsecure** visited Sandra Valeriote at OVC Pet Trust to donate \$2,100 on behalf of their customers and their **Help a Pet Program**.



UPCOMING EVENTS

APRIL 29: The 16th Annual Smiling Blue Skies Calgary Walk for Canine Cancer – Calgary, Alberta.

JUNE 24: University of Guelph Summerfest – Guelph, Ontario.

AUGUST 26: Celebrate National Dog Day with Ren's Pets and Support OVC Pet Trust – All Ren's Pets locations across Ontario.

SEPTEMBER 27-29: Veterinary Education Today Conference & Medical Exposition – Toronto, Ontario. Booth #213.



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FOR YOUR CHANCE TO WIN A \$250 REN'S PETS GIFT CARD

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