

Best friends

THE PET MAGAZINE OF THE ONTARIO VETERINARY COLLEGE



beloved Bella

Exploring the possibilities of comparative oncology.
Multi-centre clinical trial investigates vaccine for dogs with
bone cancer; findings may hold promise for human cancers.

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IMPROVE LIFE.



FROM THE DESK OF OUR MANAGING DIRECTOR

For years I have walked the halls of OVC and its hospitals. I've used our referral services with my former dog Madison and my dog Juno receives her primary health care at OVC Smith Lane Animal Hospital on campus. Until recently however, I haven't had to use our emergency service. This summer, Juno got into some medication and we had to rush her to the OVC Intensive Care Unit (ICU) on a Friday night.

When I arrived at the hospital, I was confident. It was late at night, but I knew where I was going; where to park; how to contact people when I arrived; and what the space looked like. I handed Juno over for examination and I sat alone in an exam room. It was one thing to tell people how lucky they were to have their animals treated here and an entirely different one having your pet treated in the middle of night and not knowing what was going to happen. Emotions were high and I had to work hard to keep my feelings under control, as the series of what ifs started running through my mind. What if she wasn't ok? What if she had to stay in the hospital? What if this developed into a chronic illness? What would our family do if something happened to her? When my emotions finally got the better of me, the staff were kind, compassionate and reassuring.

When I tour friends and supporters of OVC Pet Trust through our hospitals, I tell them about the wonderful, dedicated people who work at OVC. That night – I experienced that kindness and what many pet owners

go through. The amazing care Juno received wasn't because I work here and received special treatment. I didn't know the people who looked after Juno, but their care and concern for both of us were exemplary. They took the time to explain the different options we had. I was reassured by their confidence and knowledge and they helped me make the decision that was right for our family and for Juno's health and well-being.

I'm happy to report that Juno came home that night and has returned to her normal, boisterous self. I hope I never have to be a client in an emergency situation again, but if I was I know my pets would be getting the best care possible and I know we'd be in the best place.

Thank you for supporting OVC Pet Trust. I hope you enjoy this issue of *Best Friends* and learn about the various ways our devoted and caring teams and researchers are improving and advancing pet health. With your help, we are making a difference and helping pets spend more time with their families who love them.

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

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 improving and advancing the health and well-being of companion animals. OVC is a leader in veterinary healthcare, learning and

discovery for the health of all species, including our own. In 2019, Quacquarelli Symonds (QS) ranked OVC 1st in Canada, 3rd in North America and 7th in the world for veterinary science amongst veterinary schools worldwide.

TO LEARN MORE OR TO DONATE VISIT WWW.PETTRUST.CA

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BEST FRIENDS: THE PET MAGAZINE OF THE ONTARIO VETERINARY COLLEGE

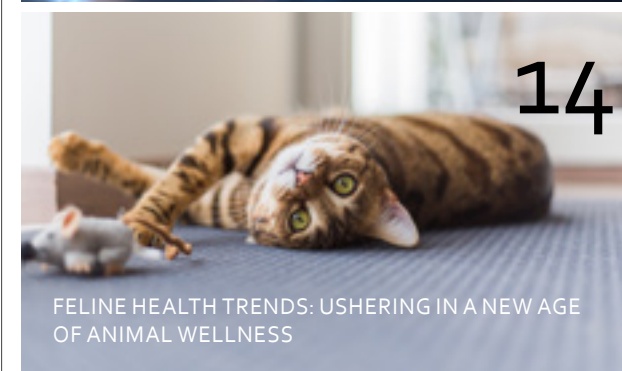
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BACK COVER

#PETTRUSTPALS
COMING EVENTS

the CAT Box

EXAMINING LITTER BOX PREFERENCES TO BENEFIT FELINE WELFARE

The cat is Canada's most popular pet. According to Humane Canada's most recent *Canadian Animal Shelter Statistics* there are approximately 9.3 million owned cats living in Canadian households. Feline population has been rising steadily around the world with 96.5 million now accounted for in the United States and 102 million in Europe. Feline intake for Canadian shelters was more than 87,000 cats, 2.65 times the number of dogs, in 2017. Thirty-four per cent of these cases were due to guardian surrender.

The most common behavioural reason cat owners surrender their cat to a shelter is house soiling — meaning, urinating or defecating outside of the litter box.

For this reason, researchers Prof. Kate Shoveller and Master of Science student Jennifer Frayne in the University of Guelph's Department of Animal Biosciences conducted a first-time study to examine whether a plant-based litter additive can alter feline elimination behaviour (how cats behave when interacting with the litter box). Furthermore, they wanted to understand the potential behavioural effects of litter boxes on cats in an effort to address feline welfare and decrease surrender to shelter.

Shoveller and Frayne analyzed the behaviour of 16 cats from local shelters over a 15 to 28-day period. Specifically, the team was looking to see if cats would demonstrate any preference for a plant-based clumping litter with an added attractant (ATTRACT) over a control plant-based clumping litter (PLANT). They also wanted to investigate if male and female cats had different behaviours related to their litter box preference. While the cats in the study had previously been exposed to clay-based litter from the shelter, it was unknown if any of the cats had been exposed

to plant-based litter or if they had any pre-existing behaviour problems with eliminating outside of the litter box.

Litter boxes were placed in eight different locations. Ten primary litter box behaviours were observed to understand the cat's pre, during and post box interactions with the different litters such as: covering, digging, fecal event, urination event, mimic covering, paws in the litter box, perching, posturing, sitting and sniffing. Frayne says the findings add to our basic understanding of feline elimination behaviour and suggest potential targets for improving litter preference and reducing house soiling.

Study observations suggest: cats prefer a litter box that is next to a wall; litter box maintenance is important — cats in the study preferred using the litter box immediately after scooping; in general, cats in the study were found to urinate significantly more in the ATTRACT litter than the PLANT litter; duration of urination behaviour did not differ between the litter types, however, males were found to urinate significantly longer each day than females; while there were no differences found between the number of defecation behaviours between the different litters or between the sexes, but it was found that the cats generally had a longer daily defecation

duration in the ATTRACT litter compared to the PLANT litter.

Overall the research team connected the increase in urination events as a sign of preference, and therefore suggest that cats preferred the ATTRACT litter.

"Our hope is, when used in combination with good litter box management, the ATTRACT litter may help to ensure that cats continue to be drawn to their litter boxes for elimination, thus helping to reduce the likelihood of urinating outside of the box and potential risk of surrender to shelters," Frayne explains.

While the literature shows cats are often perceived by pet owners or potential pet owners as a lower commitment pet when compared to dogs, Frayne stresses the importance of understanding a cat's individual history.

"Cat behaviour is intricate and stoic, and stress can be a trigger for house soiling behaviours," Frayne says. "It is important to introduce a cat slowly to their new surroundings when welcoming them to a new home environment," Frayne explains, adding there are many things cat owners can do to enrich their cat's home environment and engage with their feline friend. This same principles apply when making any change to a cat's environment, such as changing the type of litter or the litter box itself.

Signs of feline stress can include hiding, not eating, not using the litter box and house soiling may be due to stress or medical reasons. "If your cat starts to exhibit house soiling behaviors it is important to consult a veterinarian early and rule out health issues," Frayne advocates. "Considering the litter preference of your cat is one more tool in a pet owner's toolbox."

LITTER BOX BASICS

- Size matters: the bigger, the better.
- Cleaning is caring. Cat owners should scoop and regularly clean their cat's litter box(es).
- Cats prefer at least 2" of litter so they can engage in digging and covering behaviour.
- The general rule is to have one litter box per cat in the home plus one extra. Depending on the dynamics of the cats, more may be needed.
- Quiet zones are ideal locations; position litter boxes in corners, away from doors and open spaces.
- Adjusting litter box content based on preferences is simple and easy to implement; offering your cat a number of options and seeing what they prefer to use is best.*



Photo credit: istock.com.

NEW ONE HEALTH INSTITUTE AT U OF G

This summer a new research and teaching institute was launched at the University of Guelph. The new One Health Institute (OHI) will bring together multidisciplinary researchers from across campus along with external partners to tackle some of humanity's most pressing health problems from heading off the next global pandemic to improving food security. 🐾



OVC HEALTH SCIENCES CENTRE NAMES NEW CHIEF MEDICAL OFFICER

This year the OVC Health Sciences Centre (HSC) announced that Dr. Luis Gaitero will take on the newly developed role of Chief Medical Officer (CMO). The CMO develops, coordinates and oversees clinical service delivery in the OVC HSC in collaboration with the Associate Dean, Clinical Program (Dr. Stephanie Nykamp), administrative team and medical staff leaders. Gaitero is an associate professor and a board-certified veterinary neurologist. "As CMO, my main priority is to ensure our patients and their families receive the highest quality veterinary care in a safe, collaborative and efficient environment," says Gaitero. "The medical operations of a high-functioning veterinary referral hospital such as OVC are complex and dynamic. In an ever-changing world, it is more important than ever to have the flexibility to recognize opportunities for improvement, identify needs and continuously deliver the specialized, compassionate care that is the foundation of our unparalleled reputation here at OVC." 🐾



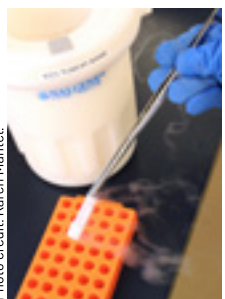
OVC PET TRUST THANKS DR. GORDON KIRBY

The OVC community celebrated Dr. Gordon Kirby's 10-year term as Associate Dean, Research and Innovation (ADRI) this fall. During his tenure as ADRI, Kirby implemented initiatives that grew OVC's robust research program and the College's graduate studies. He enhanced the research application process, helping faculty apply for funds and develop their grant application skills; helped to streamline the process of allocating OVC Pet Trust and other funding sources; and increased clinical trial recruitment. Dr. Shayan Sharif has been appointed as the new Associate Dean, Research and Graduate Studies. Dr. Sharif began a five-year term on September 1, 2019. 🐾



NEW ANIMAL HEALTH PARTNERS CHAIR IN VETERINARY MEDICAL INNOVATION

The University of Guelph's Ontario Veterinary College (OVC) is expanding its role as a leader in translational medicine with the launch of a new \$1-million research chair focused on medical innovation. "This position will provide more opportunities to focus on clinical research and accelerate the translation of medical innovations from laboratory to patient," said Dr. Michelle Oblak, who has been named the first holder of the Animal Health Partners Research Chair in Veterinary Medical Innovation. "The ultimate goal of this new funding is to improve outcomes for both animal and human patients." 🐾



NEW TUMOUR BANK COORDINATOR JOINS OVC'S COMPANION ANIMAL TUMOUR SAMPLE BANK TEAM

This August Deirdre Stuart joined the Ontario Veterinary College in the role of Tumour Bank Coordinator. As a member of the Clinical Trials team, the Tumour Bank

Coordinator supports cancer research and other clinical research investigating advanced disease and chronic illnesses. OVC's Companion Animal Tumour Sample Bank (CATSB) aims to promote basic and translational cancer research at the University of Guelph and elsewhere, with the ultimate goal of improving the lives of companion animals with cancer. The CATSB and its staff - the Tumour Bank Coordinator and the Clinical Trials Coordinator - are supported by donations made to OVC Pet Trust through The Smiling Blue Skies Cancer Fund. 🐾

Photo credit: istock.com/graphic

A 21-year-old Canadian man recently died of rabies — a disease that kills an estimated 59,000 people a year internationally but hasn't infected a person in Canada since 2007. He suffered a small puncture wound after a bat flew into his hand during daylight on the west coast of Vancouver Island. He developed the symptoms of rabies six weeks later.

Should we be concerned about rabies? Yes. It's an almost invariably fatal infection caused by a virus that is widely present in wildlife in Canada and globally. Should we be more concerned about rabies now than we would have been before this person's death? No. While tragic — both because of the fatal outcome and the fact that it could have been prevented — the situation does not indicate any change in the risk of rabies in Canada.

RACCOONS, FOXES, SKUNKS AND BATS

Rabies is a viral infection caused by the rabies virus, which circulates in different “reservoir species.” Raccoons, foxes, skunks and bats are all hosts of specific rabies virus variants. However, while those rabies virus variants are best at circulating in their host species, they can spillover to other species. There is no human rabies virus variant, but humans can be infected by any rabies virus. Internationally, it is estimated that rabies kills approximately 59,000 people every year, almost all in developing countries in Africa and Asia, and almost all from dogs in areas where canine rabies virus variant is present. Canine rabies virus was eradicated in Canada many years ago (although dogs can still get rabies from other species), leaving wildlife as the source of infection. The distribution of rabies virus in different wildlife species varies across the country, ranging from the notable return of raccoon rabies in Hamilton, Ontario to national dissemination of bat variant rabies.

WHAT PET OWNERS NEED TO KNOW ABOUT...

SHOULD WE BE CONCERNED ABOUT

By Dr. Scott Weese

Rabies?



This article is republished from The Conversation (www.theconversation.com). Photo credit: iStock.com / CraigJ010

Virtually every Canadian is at some, albeit exception-ally low, risk of rabies exposure given the distribution of this virus in wildlife.

WITH POST-EXPOSURE TREATMENT, RABIES IS PREVENTABLE IN PEOPLE

Rabies virus is transmitted from an infected animal to a person through saliva, almost always via a bite. Rabies deaths in Canada indicate a breakdown in education, communication and health care, since sources of exposure are well understood and rabies is virtually completely preventable. If people know how rabies is transmitted, report bites to public health personnel and get rabies post-exposure treatment when indicated, the risk of rabies is essentially zero. As with many infectious diseases, the science and medicine are easy. We know how to completely prevent rabies. However, as the recent B.C. case highlights, breakdowns can happen. It's the human element that causes risk. In the tragic B.C. rabies case, there was nothing new or surprising, just a lack of understanding of the risk of rabies. In part, this is probably because the successful control of rabies in Canada means there is less public interest and awareness. The risk of rabies to Canadians is as much from complacency and lack of education as it is from wildlife.

WHAT TO DO IF YOU ARE BITTEN BY A WILD ANIMAL

The recent rabies case highlights some important facts. Rabies is present in Canada and probably always will be. While we can control rabies in some animal populations, eradicating it from bats is next to impossible. As a result, we have to learn to live with an ever-present risk of exposure. If you are bitten by a wild animal:

1. Wash the wound with soap and running water.
2. Identify the animal, if possible, so that it can be quarantined or tested.
3. Seek medical care.
4. Ensure your local public health unit has been contacted or contact them yourself. They will coordinate observation of the biting animal (when possible) and organize post-exposure treatment, if it is needed.

If anything good can come out of this unfortunate incident, it will be increased awareness of the risk of rabies and how to reduce that risk. Basic awareness is sometimes all that is needed to save a life. 🐾



CBD

Cancer Cell Killer: Investigating cannabidiol (CBD) as an innovative cancer treatment option in dogs

Photo credit: istock.com/TinakornJomuang and istock.com/WiradWonderland

Urothelial carcinoma (UC) is the most common bladder cancer found in dogs and accounts for approximately two per cent of all canine cancer cases.

UC is also a cancer that impacts humans and according to Bladder Cancer Canada, it is the fifth most common cancer in Canada. Also sometimes referred to as transitional cell carcinoma (TCC), approximately 9,000 Canadians are diagnosed with bladder cancer each year and since it has a 60 to 70 per cent rate of recurrence, bladder cancer is the most expensive cancer to treat on a per-patient basis.

Most dogs are diagnosed with the invasive form of UC, which occurs when cancer cells invade the muscle of the bladder. Prognosis, or survival time, depends on how advanced the cancer is, how big the tumour has grown and how the disease has progressed within the body. On average, canine patients live six to 12 months from the time they receive a UC diagnosis. In people, only 20 per cent of cases are this invasive form of bladder cancer; the remaining 80 per cent of human cases are low grade UC, which is treatable.

Recent veterinary research revealed there is a specific genetic mutation that may be the cause of bladder cancer: 85 per cent of dogs diagnosed with UC have this alteration in their DNA. It has also been found that there are genetic similarities between humans with invasive UC and dogs who are diagnosed with the disease.

Dr. Samuel Hocker, a board-certified veterinary medical oncologist at the Ontario Veterinary College's Mona Campbell Centre for Animal Cancer, is one of the first Canadian-based veterinary researchers to investigate the potential impact of cannabidiol (CBD), a naturally occurring compound and non-psychoactive constituent found in cannabis plants, as an innovative treatment for dogs with this difficult-to-treat cancer. His research is investigating CBD as a potential anti-cancer medication for dogs.

"Traditionally, treatment options for UC involve chemotherapy in combination with anti-inflammatory drugs," says Hocker. "More recent protocols can also include targeted treatment aimed at shrinking the tumour through radiation therapy."

Bladder cancer can be tricky since the response to treatment varies greatly depending on the case and the stage of its progression. Most dog patients are immediately impacted by their life-limit-

ing diagnosis, Hocker says, and currently, since protocols vary, only eight to 57 per cent of patients respond to traditional therapies. Most dogs with UC die from primary bladder cancer, rather than surviving long enough for it to metastasize throughout the body.

"I chose to focus my work on this specific type of cancer because I want to make a difference and tackle a cancer that is both challenging to treat and equally as difficult for pet owners to manage," says Hocker. "Initially we will explore if, with the right variables, CBD can kill a canine bladder cancer tumour on a cellular level in a preclinical, or laboratory, setting."

Hocker's work, funded by OVC Pet Trust and Grey Wolf Animal Health, is specifically investigating if CBD can function like other medications and bind to certain receptors, also called molecular targets, on cancer cells. Can CBD kill the cancer cells through these receptors or are the cancer cells killed through different mechanisms outside of those receptors? Hocker is hopeful CBD has potential as an anti-cancer therapy.

He is also studying the effect of CBD on chemotherapy and radiation therapy patients. "Can CBD improve the effect of these treatments in pets? Or, does it limit the benefits of these treatments and in fact prevent the therapies from killing cells and doing what it is supposed to do?"

"It is early days in this area of research," Hocker says. "There is a lot to learn and a long road to travel from discovery on the clinical research bench to developing new protocols and treatment at the bedside."

Pet owners should understand that right now there isn't one clear and easy answer as to whether or not CBD will benefit or cause harm to our animal companions. "There is a misconception that CBD is safe because it is a natural product, but, when it comes to pets, there is still a great deal of scientific evidence needed to understand the impact associated with CBD as a treatment option,"

Since some human cases of this type of cancer behave similarly to the dog cases, there is hope that results from the study could identify the potential for translational benefits down the road.

"Right now, the focus is to create a strong, evidence-based foundation through our research and learn as much as we can to inform the field of veterinary medicine." 🐾

What is Evidence-Based Medicine?

Evidence-based medicine (EBM) involves clinical decision making based on the empirical body of research in the area of medicine that is being considered. Empirical research means gaining knowledge from direct and indirect observation or experience. Practices that are not evidence-based may rely on tradition, opinion, intuition, individual beliefs or other unproven methods. EBM encompasses research that is supported by data, not just based on theory. EBM means that the information used to make decisions about patient care is based on sound research – not opinion.



GETTING TO KNOW... DR. MELISSA SINCLAIR

ANESTHESIOLOGIST AND ASSOCIATE PROFESSOR
DEPARTMENT OF CLINICAL STUDIES
ONTARIO VETERINARY COLLEGE
UNIVERSITY OF GUELPH

Why did you pursue a career in veterinary medicine? Why anesthesiology?

I have always wanted to pursue a career in veterinary medicine. During my large animal internship at the Ontario Veterinary College (OVC), after completing my degree Doctor of Veterinary Medicine, I had the pleasure of working with Drs. Dyson and McDonnell, now retired faculty anesthesiologists, both of whom always took the time to answer my difficult anesthesia case questions. Their energy and enthusiasm for anesthesia was infectious. With their encouragement and my interest in both large and companion animals and emergency cases, a specialization in anesthesiology was a great fit for me. Animals routinely undergo anesthesia to minimize pain, discomfort and stress during surgery and it is also used for vital diagnostic imaging procedures when the patient must not move and remain relaxed in order to properly assess their medical condition. I love what I do and I really enjoy mentoring student veterinarians, interns and residents.

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

OVC Pet Trust has been incredibly supportive of my companion animal research; I couldn't accomplish what I do without them. Over the years OVC Pet Trust has funded my research to advance our knowledge and understanding in the field of veterinary anesthesiology.

What research projects are you currently working on?

Research in the field of veterinary anesthesiology is commonly focused on optimizing safety protocols for our patients. We are fortunate in Canada to have access to many of the same types of anesthetic drugs for our pet patients that are available in human hospitals. My goal as an anesthesiologist is to enhance the safety of our anesthesia practices for animals – specifically, to minimize the undesirable effects of drugs in our sick patients.

My current clinical research is funded by OVC Pet Trust: I am examining different combinations of anesthetic drugs typically used during the induction stage—the period of time between the “awake state” and the “loss of consciousness”. Anesthetic drugs can have side effects on the heart and the lungs. My research is investigating how veterinarians can use the most appropriate dosages of anesthetic medications and minimize the adverse cardiopulmonary effects in critical canine patients.

What will the new surgery and anesthesia facilities at OVC mean to you?

I am so excited for the new facilities. The new space will be larger and brighter, with a quiet and dedicated area for our pet patients to recover, separate from the potentially noisier induction area. The new anesthesia facilities will truly make a difference in our patient comfort and recovery.

Do you own any animals yourself?

I live on a farm in Rockwood with my husband (ruminant veterinarian Dr. Rob Swackhammer, OVC'96) and children Anna (age 15) and Alexander (age 14). Our family has four horses, three cats, two dogs, four Jersey calves and a herd of beef cattle. Animals are a big part of our lives and we wouldn't have it any other way.*

Photo credit: Ashleigh Martyn.



a day in the life of an Internal Medicine Resident

Veterinary internists are puzzle solvers. They gather the pieces together in many ways in order to form a complete picture of health and disease in their patients, such as: obtaining a patient's health history from pet owners; interpreting diagnostic images which may include radiography (X-rays), ultrasound, CT or MRI; assessing a patient's clinical signs; analyzing laboratory results including blood work and biopsy samples; and conducting specialized and complex diagnostic procedures such as endoscopy, a minimally invasive procedure used to explore and visualize the inside of the body. They methodically fit the puzzle together to arrive at a diagnosis, prognosis and treatment plan for their patient.

Much like in human hospitals, Internal Medicine or 'Medicine' involves non-surgical techniques to diagnosis and treat acute and chronic disorders or illnesses that involve multiple organ systems. Conditions may include

infectious diseases, endocrine disease (for example diabetes), blood diseases (for example anemia), gastrointestinal (GI) diseases, pancreas and liver diseases, kidney and urinary tract diseases and respiratory diseases.

Dr. Allison Collier is an Internal Medicine Resident at the OVC Companion Animal Hospital. She is currently pursuing a three-year advanced clinical training program to become a board-certified veterinary internal medicine specialist. Her program includes working on the clinical service, treating patients and leading a research project with Dr. Shauna Blois that is investigating fecal transplants as a treatment option for dogs who have been diagnosed with inflammatory bowel disease (IBD), a type of GI illness.

MORNING

Allison's days on the clinic floor involve a variety of collaborative activities. On days like today,

she spends her time in appointments consulting with new and returning pet owners and examining her patients; performing endoscopic procedures; and assessing incoming emergencies who are directed to the medicine clinical service. Each morning begins with rounds, an important part of the patient care process, where members of the veterinary medical team review each case and provide updates and discuss next steps in their patients' progress or treatment plan.

Last year, 223 endoscopies were performed at the Ontario Veterinary College's Health Sciences Centre; 186 in dogs, 33 in cats and 4 in avian and exotic patients. The internal medicine team works with anesthesiology, diagnostic imaging, registered veterinary technicians (RVTs) and fourth year Doctor of Veterinary Medicine (DVM) students to conduct endoscopy procedures that can take anywhere from one hour, or more, depending on the medical situation.



In photo (page 11 and above): Allison prepares patient Lulu for her procedure.

Photo credit: Ashleigh Martyn.

Today Allison has two patients here for endoscopic procedures. Lulu, a six-year-old Yorkshire Terrier, and Loki, a four-year-old German Shepherd Dog.

It is likely Lulu has a protein losing enteropathy, a GI disorder resulting in the loss of body proteins through the intestines. To help connect the puzzle pieces together and to find the answers she is seeking, Allison reviews Lulu's differential diagnoses, a complex task to distinguish between one particular disease or condition from others that present similar clinical signs. This is an important part of clinical reasoning and decision-making in the health care profession.

Loki is here today to repeat bloodwork, have an ultrasound examination and proceed with endoscopy. Based on his history and clinical signs, IBD is the most likely diagnosis. Biopsies will hopefully help confirm this diagnosis and rule out other conditions. Allison is hopeful Loki will be able to participate in her fecal transplant study down the road with his owner's consent, if he is a suitable candidate.

A two-year-old Portuguese Water Dog patient named The Professor arrives. He has been admitted to the hospital with a suspected diagnosis of immune-mediated polyarthritis (IMPA), a condition causing inflam-

mation within the joints, causing pain and difficulty walking. The Professor will be scheduled for a joint tap procedure, in which Allison will use a small needle to remove fluid from various joints in the dog's body to be microscopically analyzed to help construct a firm diagnosis of IMPA.

AFTERNOON

Between the endoscopy procedures, Allison meticulously keeps track of her various duties throughout the day: pending diagnoses for her patients; monitoring current patients admitted to the hospital; discharging patients; and her ongoing to-do-list including paper work and medical chart writing, phone calls and updates to owners and referring veterinarians.

"I love the detective work and the variety of conditions and diseases involved in the specialty of internal medicine, which is why I chose to specialize in this field," says Allison. "Like many areas of medicine, we rely on diagnostics to get to the bottom of what is making our patient sick to determine the best treatment plan to help them feel better and get them back home with their families."

Orange, a three-year-old Domestic Shorthair cat, is here for a

recheck appointment, and Allison greets her happily. She performs a physical examination on the cat, who has been diagnosed with immune-mediate hemolytic anemia (IMHA), a condition that occurs when the immune system produces antibodies that mistakenly attack its own red blood cells. On top of her diagnosis, Orange has an uncommon blood type. Allison explains the treatment for Orange's condition involves immunosuppressive therapy; her condition is controlled on an outpatient basis, with regular monitoring at OVC.

Allison has a calm, compassionate and hard-working disposition with both her patients and colleagues. She says her lifelong love for animals and seeing how much her family veterinarian made a difference in the lives of her own pets is what inspired her to pursue a career in veterinary medicine. The OVC Companion Animal Hospital is a teaching hospital. She not only learns from and collaborates with OVC faculty and staff clinicians on all specialties, but she is also involved in training fourth year Doctor of Veterinary Medicine (DVM) students who are on their two-week small animal medicine clinical rotation, a part of their veterinary school curriculum.

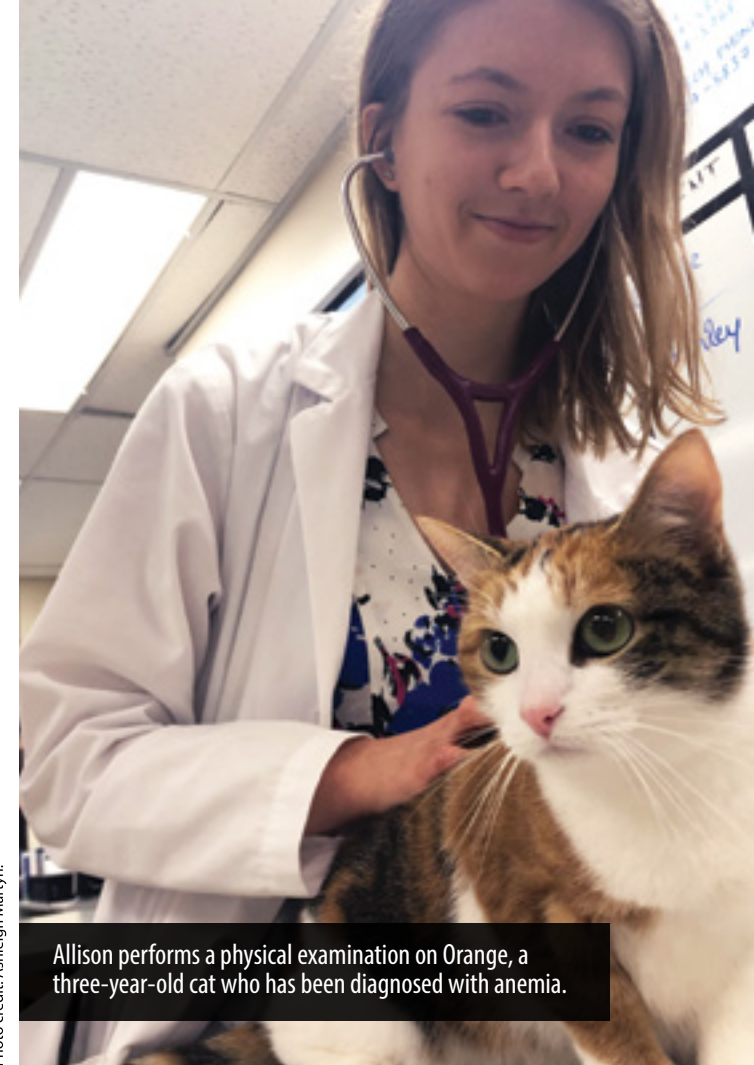
EVENING

The complexity of diagnosis and number of cases Allison sees in a given day can vary greatly in a tertiary care hospital. The days can be long. As the day ends, Allison checks in on one of her hospitalized patients, Caitlyn, an 11-year-old Boston Terrier, who is in the Intensive Care Unit. Caitlyn had a foreign body removed from her stomach the day before. An ultrasound confirms she has fluid in the pleural space, an area between the lungs and the chest wall. Allison, along with emergency and critical care residents, performs a thoracentesis, also known as a pleural tap. A needle is carefully inserted to remove excess fluid while Caitlyn is under light anesthesia, which Allison hopes will make Caitlyn more comfortable while she recovers in hospital.

End of day rounds are underway, and Dr. Anthony Abrams-Ogg, OVC internal medicine specialist and faculty member, is an encouraging and constructive teacher with residents, interns and DVM students on the medicine rotation. "What is most likely? Have we arrived at our diagnosis? What have we learned today?" He questions each presenter about the cases they've worked on today, expertly guiding and proposing next steps in their care.

Veterinary specialty training can be rigorous. Allison's days on clinics are usually 12 to 13 hours, unless she is on call, and then she must also be available to receive incoming emergency patients that present to OVC overnight.

"My residency is very rewarding. I love forming bonds with our patients and families as we care for their pets in hospital and over time through recheck examinations," Allison says. "Although the hours may be long, I am so fortunate to be able to work with and learn from such a wonderful and caring team of fellow residents, interns, faculty, technicians and students to offer the very best health care for our patients. Like many of my colleagues, I became a veterinarian because I had a deep desire to help animals. It is very satisfying to help patients, many with complex health conditions, feel better and send them home to their families where they belong."



Allison performs a physical examination on Orange, a three-year-old cat who has been diagnosed with anemia.

Photo credit: Ashleigh Martyn.



Allison performs an endoscopy procedure on patient Loki who is suspected to be suffering from inflammatory bowel disease (IBD).

Photo credit: Ashleigh Martyn.

feline health trends

Ushering in a new age of animal wellness



A new study by researchers at the University of Guelph's Ontario Veterinary College (OVC) uses big data (extremely large data sets analyzed by artificial intelligence to identify patterns and trends) to accurately determine the average weight of cats over their lifetimes to allow for a more personalized model of medicine and a preventive approach to healthcare.

The findings, published in the Journal of the American Veterinary Medical Association this July, reveal that even after cats grow out of the kitten phase, their weight still creeps up until they are an average of eight years old. But what does this really mean for our feline companions? This research is the first of its kind to utilize such a large data pool.

"Having access to this amount of data for cats is unprecedented and it has helped us to determine the

trajectory of cat weight as they age," says Dr. Theresa Bernardo, the IDEXX Chair in Emerging Technologies and Bond-Centered Animal Healthcare at OVC.

Lead author and PhD candidate, Adam Campigotto, along with Bernardo and colleague Prof. Zvonimir Poljak, analyzed the data, to answer such questions as: When do older cats become skinny? What is average weight loss over time? And what is the projected average weight for a cat based on breed, gender and reproductive status?

They found male cats tended to reach higher weight peaks than females and spayed or neutered cats tended to be heavier than intact cats. Among the four most common purebred breeds (Siamese, Persian, Himalayan and Maine Coon), the mean weight peaked between six and 10 years of age. Among common domestic cats, it peaked at eight years.

The team noted that 52 per cent of the cats among the study group had only one body weight measurement on file, which may suggest their owners did not bring the animals back in for regular veterinary check-ups or took them to different veterinarians.

"Cats tend to be overlooked because they hide their health problems and they don't see a veterinarian as often as dogs do. In keeping with our goal of providing more years of healthy life for cats, we want to make people aware of the relationship between health and weight and when a trip to the veterinarian is warranted."

For owners concerned about their cat's health or weight gain, Campigotto advises buying a scale and getting in the habit of weighing your cat.

"If your cat is gaining or losing weight, it may be an indicator of an underlying problem," he said. "Weighing

your cat at home is a simple first step in monitoring their health."

The next step in the research will be looking at ways of reducing cat obesity. Other members of Bernardo's research team are looking at the use of automated feeders that could dispense the appropriate amount of food for a cat. These feeders could even be equipped with built-in scales.

"We are ultimately changing the emphasis to cat health, rather than solely focusing on disease" says Campigotto. "As we investigate the data and create new knowledge, it will enable veterinarians to offer clients evidence-based wellness plans, allow for earlier identification and treatment of disease and an enhanced quality of life for their animals." 🐾



beloved Bella

Exploring the possibilities of comparative oncology.

"We made the decision for Bella to be part of a clinical trial for the future; not just so we would have more time with her, but so that, maybe, one day, down the road, these medical discoveries will help children and their parents who are dealing with cancer."

Bella, an eight-year-old Boxer, hops through the doors of the Mona Campbell Centre for Animal Cancer at the Ontario Veterinary College (OVC), University of Guelph (U of G). You'd never know she had undergone major surgery only two weeks prior. Bella's left rear limb was amputated after she was diagnosed with osteosarcoma (OSA), the most common type of bone cancer in dogs.

OSA is an aggressive and invasive cancer that progresses in dogs in much the same way it does in people such as Terry Fox, destroying bone most local to the tumour, with a high rate of metastasis, secondary cancer that spreads to other parts of the body. Most common in larger breed dogs, OSA typically occurs in middle-aged or older dogs but can affect younger dogs. The median lifespan from the time of diagnosis is one year with treatment but only a few weeks to months without treatment.

Bella has returned to OVC to continue her standard of care treatment protocol of chemotherapy; her owners, Chris and Jessica McGraw, also hope Bella will be part of some-

Woods explains. "While the current standard of care, surgery followed by chemotherapy, does a good job of slowing down the spread of this aggressive cancer, unfortunately, the cancer will eventually come back, similar to the cancer's behaviour in people."

So, how can we do better?

The research team is investigating a new treatment option to train the dog's immune system to attack the OSA when it reappears.

Immune therapy, also called immunotherapy, is a biological treatment that may hold the answer. Similar to a drug, but utilizing the immune system, the therapy acts against a specific target in cancer cells and can function like a vaccine or an antibody to fight disease.

Bella is one of the dogs participating in the OSA clinical trial at OVC. After her diagnosis and amputation surgery, she completed a chemotherapy protocol and then received the first administration of the recombinant listeria vaccine used in the trial in September. To take part in the trial, veterinary patients' owners, like Bella's, give consent for their dog

Multi-centre clinical trial investigates vaccine for dogs with bone cancer; findings may hold promise for human cancers.

to participate and then receive the standard of care, plus the immuno-

thing bigger. Bella is enrolled in a clinical trial aimed to help future pets with OSA and maybe even people too.

The trial is part of the work of a collaboration that spans North America. The group is investigating the use of a listeria vaccine which has been genetically modified. The vaccine targets a gene called HER2, which controls a type of protein on the surface of cells that helps them grow. The hope is to improve survival time in dogs.

Building on preliminary research conducted in 2016 at the University of Pennsylvania, which found the administration of the listeria vaccine in dog OSA patients delayed the incidence of metastatic disease and prolonged overall survival, the multi-centre clinical trial now aims to dig deeper and uncover how the results of that initial study stand up to more rigorous, scientific examination.

Funded by the Morris Animal Foundation and utilizing the network of the National Institutes of Health (NIH)'s Comparative Oncology Trials Consortium (COTC), the clinical trial is currently underway at 11 locations across North America, with OVC being the only Canadian location.

Veterinary oncologist and co-director of the U of G's Institute for Comparative Cancer Investigation, Dr. Paul Woods, is directing the study at OVC.

"When OSA spreads it usually invades the lungs, or another bone or tissue in the body,"

therapy (vaccine) treatment.

The hope is to increase the length of survival and potentially even cure OSA for dogs like Bella. "If, with the vaccine, we can delay the reappearance of OSA, we will have better control," Woods says. "Then, when the cancer returns, the immune system will be ready to fight back." Woods is hopeful the results from the trial will have translational relevance for the treatment of children with bone cancer and perhaps other cancers in humans.

"Funds directed to the cancer centre through OVC Pet Trust position us to be a key partner in the search for answers. OVC's membership in the NIH Consortium allow us to offer patients like Bella access to the most innovative treatments in Canada. We have been able to collaborate in this important group because of our advanced facilities and equipment, diverse patient caseload and our team of specialists on the frontline of care," Woods explains. At the end of the day, Woods says quality of life is of utmost importance for his patients.

"For pets who are involved in clinical trials—we are hoping participation will help lead to improved results for themselves or others, but it is important to understand there are never any guarantees. Even if it doesn't provide solutions for patients today, it is important for pet owners, like Bella's, to understand the incredible gift of hope they are giving for future pets, and maybe even people too." 🐾

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.

COMPANION ANIMAL HEALTH

Optimizing concentrations of a novel imaging agent for lymph node mapping in cancer

Dr. Michelle Oblak

Study aims to improve understanding of a novel imaging agent, indocyanine green dye (ICG), for use in cancer surgery in dogs. Improvements in surgical method and creating consistency in the procedure would benefit owners, patients and clinicians with improved surgical outcomes.

Evaluation of pet owner preference when their pet is treated with antibiotics

Dr. Scott Weese

Study will provide novel information about behavioural aspects of antimicrobial use that have not been previously investigated. Owner preferences are important to understand because they can be reflected in veterinary recommendations, treatment compliance and selection of optimal treatments, thereby impacting patient care, owner and clinician satisfaction and antimicrobial stewardship.

3-D printer for use in companion animal research

Dr. Alex zur Linden

An OVC research group is using 3-D printing in veterinary medicine to improve patient outcome by reducing surgical time and providing patient specific implants. The use of this equipment will allow the expedition of ideas and research in a cost-effective manner to provide patient specific care to cats and dogs with various conditions.

DOG HEALTH

Blood sample storage for platelet function testing in dogs with hemolytic anemia treated with blood thinners to prevent stroke

Dr. Anthony Abrams-Ogg

Platelet function testing is important to improve treatment with blood thinners in dogs with hemolytic anemia. This study hopes to demonstrate that blood samples can be stored using special solutions that will allow any dog in any clinic to have access to such testing.

Assessment of antiseizure therapies in dogs with epilepsy by measuring brain activity

Dr. Fiona James

This study's findings will guide the choice between antiseizure drug therapies for dogs with epilepsy and may help to predict which dogs will have better outcomes.

Can smaller blood sample volumes be used to test blood clotting ability?

Dr. Shauna Blois

Hospitalized patients undergo many blood tests, and taking large sample volumes can have negative effects on patients. Using smaller volumes of blood in tests could help reduce sample requirements from patients, leading to improved patient comfort and outcome.

Comparing pre and intraoperative lymph node staging methods in dogs with cancer

Dr. Michelle Oblak

This research will evaluate a novel

method for staging pets with cancer and help develop protocols for using this method in clinical patients that present for cancer surgery.

Investigating the use of rivaroxaban, a new medication to prevent excessive blood clotting, in dogs

Dr. Shauna Blois

The outcomes of the study will help identify which tests are most suitable for monitoring dogs undergoing this therapy and could help future studies determine best doses to achieve maximum efficacy of this drug while preventing side effects.

Testing a new approach to improve chemotherapy in dogs with lymphoma

Dr. Brenda Coomber

Findings may help pet owners decide on the best treatment for their dog with lymphoma and could also lead to the development of a new type of treatment for canine lymphoma that may improve responses to the standard chemotherapy drugs now in use.

Effect of cannabidiol (CBD) on canine urinary bladder tumours

Dr. Sam Hocker

Treatment and overall prognosis for canine urinary bladder tumours has not significantly changed over the last couple of decades. Cannabidiol (CBD), a naturally occurring compound found in cannabis plants, may represent a novel innovative treatment option for this type of cancer.

Early detection of a canine cancer by routine blood sampling

Dr. Geoff Wood

Hemangiosarcoma is a highly lethal cancer in dogs that is commonly detected late in the course of disease when it has already spread. Finding a way to screen for this cancer when it is still very small may allow for early surgical removal and greater chance of cure.

RNA modifications in canine epilepsy

Dr. Jonathan LaMarre

By understanding the changes in RNA modifications that occur during and

after seizures, this study aims to identify key sites for intervention to prevent the increase in seizure frequency and altered behaviour that often accompanies this common disease.

CAT HEALTH

Blood sample storage to give universal access to platelet function testing in cats at risk for stroke

Dr. Anthony Abrams-Ogg

Platelet function testing is important to improve treatment with blood thinners. This study hopes to demonstrate that blood samples can be stored using special solutions that will allow any cat in any clinic to have access to such testing.

Measuring kidney function with a urine test to detect urinary tract blockages and predict recovery in cats

Dr. Alice Defarges

Blockage of the urinary tract is a common condition in cats that is challenging to successfully treat and fatal if left untreated. This study will evaluate if the measurement of a certain molecule (KIM-1) can be a useful and non-invasive test to predict the recovery of cats with ureteral obstructions.

Risk for nutrient deficiency during weight loss plans in obese cats

Dr. Adronie Verbrugghe

It is well acknowledged in the veterinary profession that obesity is a major health concern that needs to be addressed. One barrier between this acknowledgement and successful, safe weight loss is a lack of understanding and confidence in the veterinary community about which products are meant for weight loss and what degree of energy restriction is allowed. The results of this study will have an impact on recommendations made by veterinarians regarding weight loss and calorie restriction in obese cats. 🐾

“The fact that this innovative treatment was even available to us, even though we had to travel to another country, was truly life-saving. I was thrown into a cascade of emotion. It was a leap of faith. This was it. This was going to be Murphy’s chance to live.”



“The day I found out my dog had a rare type of cancer, I was completely terrified: I was shocked and I was devastated.”

Kris Depowski rescued her beloved mixed breed dog, Murphy, in 2013 when he was one year old. He had been found emaciated, running down a highway in Tennessee. Kris heard about him through a rescue group and it was love at first sight, she remembers. It was devastating when Murphy’s family veterinarian in Buffalo, New York found a small mass the size of a golf ball on his skull earlier this year and recommended that Kris and her dog immediately travel to the University of Guelph’s Ontario Veterinary College (OVC) for further evaluation.

Murphy was diagnosed with multilobular osteochondrosarcoma (MLO), a type of cancer that starts in the bone. MLO tumours most commonly develop on flat bones such as the skull, as in Murphy’s case. These tumours are usually considered slow-growing but can become quite serious quickly given their location and proximity to the brain. Clinical signs in dogs may include a noticeable bump on the head and neurologic deficits, like seizures. MLOs can affect any size or breed of dog. Treatment requires complex surgical intervention and often the removal of the portion of the skull that is affected.

After Murphy’s initial consultation at the Mona Campbell Centre for Animal Cancer, the oncology service within the OVC Health Sciences Centre, Kris returned home to Buffalo with a tough decision to make on her dog’s behalf.

“I was feeling unsure. The decision I had to make was huge. I didn’t know enough about his cancer or potential outcomes since it was so rare, and so little research has been done on it. I pulled out my computer and started to investigate; it was then that I came across a story that had aired on *CBS Evening News* only a few months earlier. This same surgery that my Murphy needed had been done once before

– in a dog with the same type of cancer as mine,” she remembers. “I watched OVC’s Dr. Michelle Oblak interview about the procedure and successfully replacing 70 per cent of a dog’s skull with a 3-D printed plate in another American dog, named Patches. It was a medi-



RECONSTRUCTING MURPHY

cal milestone and that was what turned the tide for me.”

Kris decided to move forward with Murphy’s procedure.

“The fact that this innovative treatment was even available to us, even though we had to travel to another country, was truly life-saving,” she says, understandably emotional. “As a dog mom, I was thrown into a cascade of emotion. It was a leap of faith. This was it. This was going to be Murphy’s chance to live.”

Within a month, Kris returned to OVC, this time for a CT scan, and images of Murphy’s skull were taken.

3-D printing is instrumental in planning and performing surgeries such as Murphy’s.

“We used the CT scan to build a 3-D model of Murphy’s tumour and skull. Using the model, we can determine the best surgical path and even practice the complex surgery well in advance of being in the operating room (OR),” says Oblak. “On top of planning, the model allows us to reassure pet owners by demonstrating what the procedure

will look like, show how the 3-D plate (also created from the scans) will be placed once the tumour is removed and answer any pressing questions or concerns they may have.”

Oblak says the innovative technology arms her with the tools she needs as a veterinary surgical oncologist to make the major procedure a success before she even steps into the OR.

“After performing Murphy’s CT scan we found that his tumour was large and extended deep down into his sinus. Having this information and being able to plan everything ahead of time was crucial for the procedure’s success,” Oblak explains. “Since we could see that the tumour was behind his eye, it would have been difficult to create a traditional hand molded mesh implant that contoured well in that region. 3-D printing technology has allowed us to bring creative innovation to the clinic floor and directly helps us save lives in the OR.”

Murphy underwent a partial craniectomy on May 7, 2019 at the OVC Companion Animal Hospital.

“After the tumour was removed, the sterile implant was then carefully placed over the left side of Murphy’s skull. The ability to practice on a model was invaluable in our ability to save Murphy’s left eye,” Oblak explains.

Murphy spent six days recovering in the OVC Intensive Care Unit after his surgery and was able to return home in May of this year.

The decision to bring Murphy to Canada was an easy one. Kris says that when she adopted him, she promised she would give her dog the best life possible. This surgery was the only option to save his life and it was only available at OVC.

“Dr. Oblak’s skill, innovative expertise and incredible compassion saved Murphy’s life. You can’t put a price on that,” Kris says. “The gratitude I feel is truly overwhelming. I am so thankful for the staff and doctors – it is because of OVC that I have my dog back. I owe them everything.” 🐾

A research team-based at the University of Guelph's (U of G) Ontario Veterinary College (OVC) is developing a cerebral organoid to address what happens inside a neuron in the brain after a dog has a seizure. A cerebral organoid is an in vitro miniature brain grown from stem cells. The organoid will serve as a 3-D model of a dog's brain for the team to study neurological function, disease progression and behaviour patterns as well as possible treatments for epilepsy.

Epilepsy is the most common neurological disorder seen in dogs and the most common type of brain condition in dogs and cats who are referred to the OVC Companion Animal Hospital. Neurons are the fundamental unit of the brain responsible for processing and transmitting information throughout the nervous system. If signaling between cells is disrupted or if too many signals are sent at once, this may cause a seizure.

Idiopathic epilepsy is defined as recurrent seizures with no identifiable structural cause such as brain tumours, trauma, inflammation or biochemical cause such as low blood sugar or toxicity. Dogs with this type of epilepsy are typically diagnosed between six months and six years of age.

Dr. Thomas Parmentier, a board-certified veterinary neurologist and PhD candidate in the Department of Biomedical Sciences, is conducting this research along with advisors Drs. Jonathan LaMarre and Fiona James.

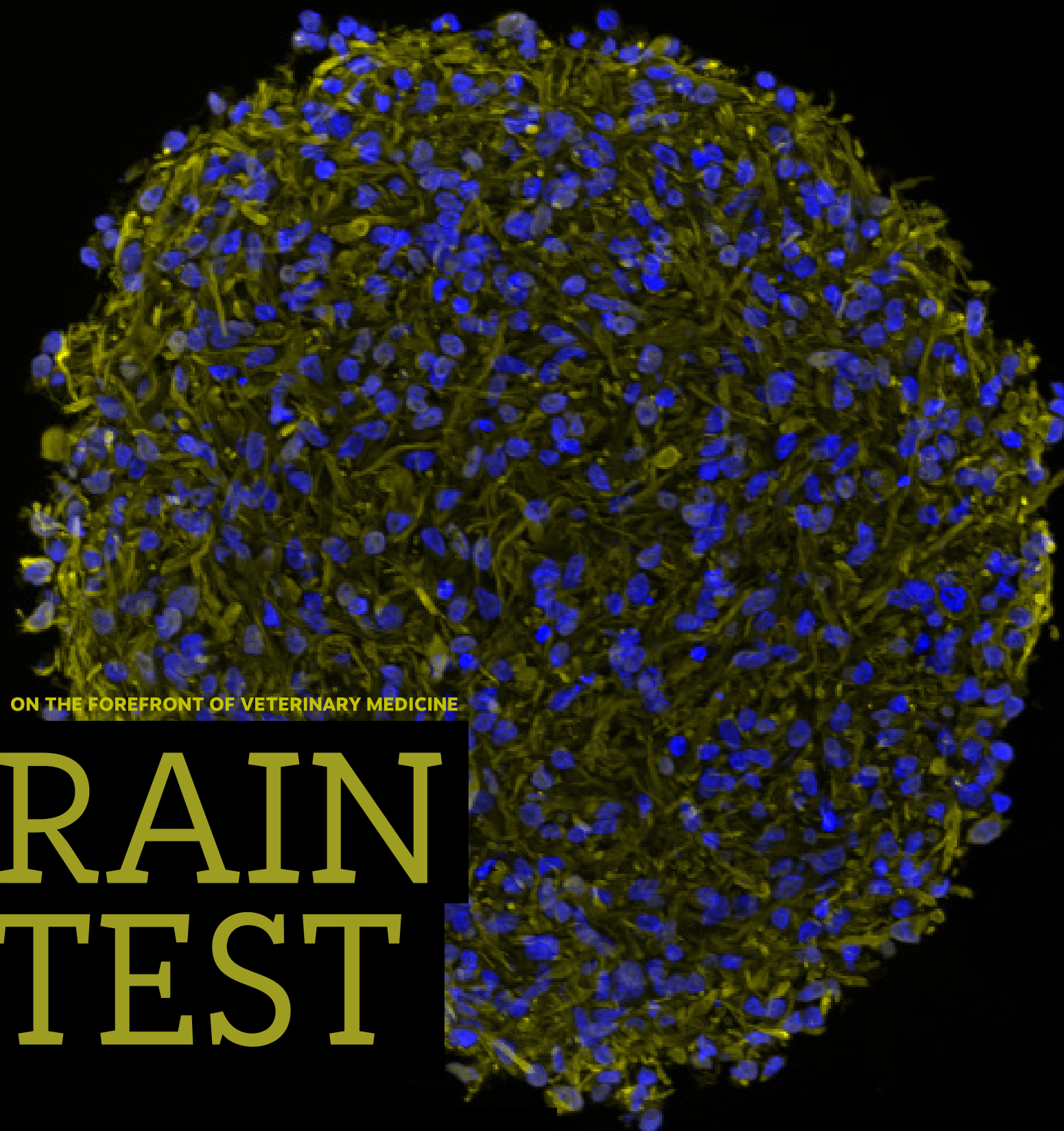
"The current treatment we have available to our veterinary patients with epilepsy involves prescribed medication to help manage and decrease the frequency of seizures but unfortunately, over time, many pets grow resistant to that treatment," Parmentier explains, adding that up to one in three dogs with epilepsy will need two or more drugs to control their seizure frequency. These drugs can come with significant side effects.

"The burden that is caused with an epilepsy diagnosis on patients and their caretakers is very significant," says Parmentier. "Identifying new treatment possibilities will have an important impact on the quality of life of pets impacted by the condition as well as their owners."

ON THE FOREFRONT OF VETERINARY MEDICINE

BRAIN TEST

Neuroscientists explore stem cell technology to understand what happens inside the dog's brain after a seizure.



The research team is specifically interested in what happens inside a neuron after a seizure occurs and how these changes, particularly in certain gene expressions (the process by which the instructions in DNA are converted into a functional product, such as a protein), contribute to the increase in seizure frequency and drug resistance. The collaborative team of clinicians and scientists hope their work will lead to the discovery of new therapeutic options for dogs that will both decrease seizure frequency and stop epilepsy progression altogether.

"We are investigating several mechanisms of regulation of gene expression that are impaired in neurons during a seizure," explains Parmentier.

One of those mechanisms is microRNA, small pieces of RNA, or ribonucleic acid, that regulate the expression of certain genes and how much of a particular protein is produced. Parmentier says these microRNA can serve both as biomarkers for specific conditions but also can be used as drugs to restore normal gene expression.

"In other words, microRNA could help us predict if a particular case of canine epilepsy will be difficult to medically manage or not. It may also one day be given as a treatment for epilepsy itself."

The research team also includes collaboration with investigators studying human brain function: Dean Betts at the Schulich School of Medicine and Dentistry at Western University and colleagues from U of G, Craig Bailey and Jasmin Lalonde.

"This technology, called 'cerebral organoids', is very new and as far as we know, has never been used for pets. This is a very exciting project because it allows us to safely grow a small piece of brain from stem cells in the lab and study how it responds to different treatments," says LaMarre.

Once the "mini brain" is at the desired size, only a few millimeters, the goal is to stimulate the organoid to experience seizures, similar to what happens in the brain of epileptic dogs.

"The potential of this technology is huge as we will be able to track how neurons respond to seizures and test the effectiveness of new drugs," says Parmentier, adding, that the ability to develop these organoids will provide a very valuable and non-invasive tool to understand a dog's brain function and how it reacts to diseases.

While this research is still in its infancy the team hopes next steps will include a more personalized approach to medical cases, developing organoids directly from patients themselves by harvesting a small, minimally-invasive skin sample. The cells would then be reprogrammed in the laboratory into stem cells, a technology called induced pluripotent stem cells.

Parmentier adds, "the ability to study organoids created from epileptic patients will pave the way for more tailored therapies, or precision medicine, so that clinicians can prescribe the treatment plans that are most likely to help their patients based on genetic understanding of the disease." 🐾

In photo: Mini brain under the microscope. Photo credit: Dr. Thomas Parmentier, LaMarre laboratory, Ontario Veterinary College, University of Guelph.



Saying Goodbye

By Andrea M. Steele MSc, RVT, VTS (ECC)

Once upon a time, I had four Labrador Retrievers: Murphy, Riley, Naia and Dublin. Murphy, Riley and Naia were all one year apart, Dublin was the baby brother. I recall a breeder friend cautioning us not to get three so close in age, as we were setting ourselves up for eventual heartbreak, but at the time, puppy-love won out. People talk about “heart dogs”; that one stand-out dog. But in my mind, all four of them qualified. Our dogs were our kids. My husband and I even cut our honeymoon short because we missed the dogs. They prepared us well for when it was time to introduce “two-legged kids”.

Naia was the Queen. She kept the boys in check. She settled arguments, she was always the leader and she got the primo couch spot. A sharp bark from her meant business and the boys respected that.

Two weeks after bringing our son home from the hospital, Naia collapsed while coming in from outside. As a Registered Veterinary Technician (RVT) that worked in the Intensive Care Unit (ICU) of the Ontario Veterinary College (OVC), I knew it was bad. Checking her out, all signs pointed to internal bleeding; she appeared to be in shock. I called into work and asked them to be ready. We were on our way. My husband stayed with the

kids and I drove so quickly it felt like we flew to OVC. The team was prepared with a gurney – and my team that I worked with every day went to work trying to save my dog’s life.

I will never forget how hard everyone tried to save Naia. The ICU veterinarians and RVTs did everything they could to stabilize her, but ultimately, I knew that we urgently needed to make a very painful decision.

Naia needed surgery immediately in order to remove a bleeding tumour on her spleen, or we needed make the decision to euthanize her. I called my husband and he rushed to OVC so we could discuss our options. Unfortunately, we received more bad news: Naia was still not stabilizing despite blood transfusions and fluids. X-rays showed she had tumours in her lung and an ultrasound revealed another mass on her liver. Her prognosis was very poor – even if she survived emergency surgery.

As a member of OVC’s emergency and critical care team, this is a familiar scene that I have been part of countless times: an emergency occurs, animals are rushed in to our service, we work for hours to make the patient comfortable, even though it is obvious that despite our best efforts, the owners are faced with making difficult, unex-

pected and heartbreaking decisions about their beloved pet. Daily, we realize not all of them can be saved — we have to focus on those that we can save to keep ourselves sane.

The OVC team treated me the same as any client that comes through our doors: with dignity and the utmost respect. Our medical team offered my family tremendous support and guidance while we made the toughest choice, deciding what to do for our beloved girl. Within hours of arriving at OVC, we made the decision to let Naia go. We stayed by her side as we told her we loved her – the Queen of our household and our sweet, loving dog. We said our goodbyes and we humanely euthanized her. She was only eight years old.

The weeks that followed were hard: she was the first of our dogs to pass, and it was so sudden and out of the blue. The boys wandered around the house, not really understanding where Naia was and they started to have more and more arguments as they decided which of them would take her place as top dog. In retrospect, having a newborn and a two-year old child to care for forced us to suppress our grief and move on. In writing this, almost 15 years later, I have tears streaming down my cheeks. The pain and grief of losing Naia has certainly lessened over time, but she will always have a special place in my heart.

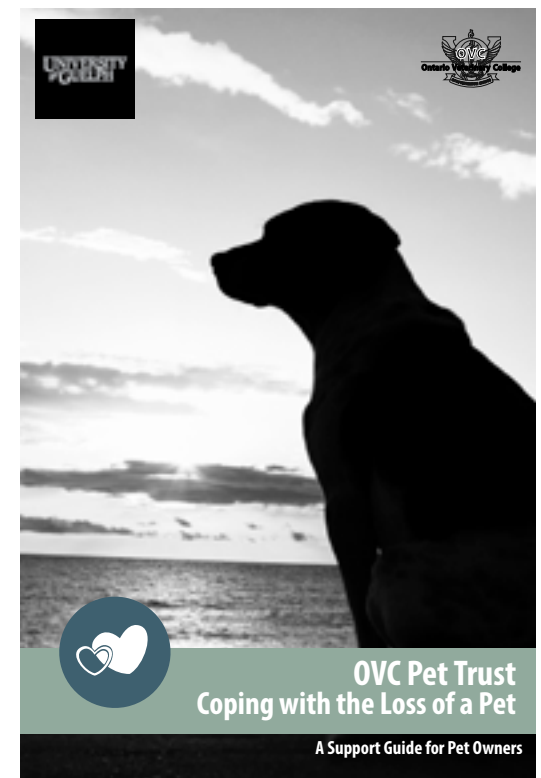
Time passed, the boys settled and we got back to our “normal” life. The dogs aged and remained generally healthy; the kids grew. Murphy, Riley and Dublin all lived to the age of 16 before we had to make that final decision. Each dog developed issues in their final year of life. Murphy’s back-end had failed him and was getting weaker and weaker. The day “it was time”, he was unable to get up or control his bladder. Riley also developed hind end weakness, very common in geriatric Labradors, and followed a similar path to Murphy. Dublin began to have seizures, likely due to a brain tumour, that were getting more and more frequent and scary to experience.

Was saying goodbye to Murphy, Riley and Dublin easier or less painful because we were able to choose their final moments? With Naia we didn’t have time to come to terms with what the end of our dog’s life would look like. Perhaps having to choose the time and place was harder, whereas Naia made the decision for us. The end – whether it is planned or whether it is sudden – is heartbreaking no matter what the circumstances are.

Either way, I know in my heart that we gave each of our dogs a great life and a calm and peaceful death...the way they deserved.*

NOW Available

OVC Pet Trust: Pet Loss Support Series



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

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 difficult to navigate. OVC Pet Trust’s pet loss resources may be able to help. Now available:

Preparing for the Loss of a Pet, Coping with the Loss of a Pet and Helping Children with the Loss of a Pet.



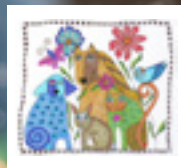
For a complete listing of pet loss support materials including: online communities; grief and bereavement resources; pet loss support groups; pet memorial ideas; suggested pet loss books and other online reading materials visit our website.

www.pettrust.ca/petlossresources.

SIX DEGREES OF SEPARATION

by Suzi Beber

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.



Smiling Blue Skies has made a great big splash this summer that is continuing right on into the fall, thanks to people like you coming together from coast to coast and across the border, to take a bite out of cancer! Events included: Calgary's 17th Annual Walk for Canine Cancer; Vancouver Island's "Capital Comets Dog Sports" awesome annual event; "Dogwood Pacesetters" Agility for Cancer Fun Match; Lunenburg's "Golden Gathering"; the Florida Gulf Coast Golden Retriever Club's raffle; "Bark Avenue Remarkable K9s" raffles; The Golden Retriever Club of British Columbia's Sandie Bond Seminar; all of the special fundraisers planned by the Sault Ste Marie KOA; and Quebec's "Shakeely's Cans for Cancer."

Erin Lynes is one of Smiling Blue Skies' newest heroes. In July 2018, Chester, one of her Eromit Labrador Retrievers, underwent surgery for his second round of mast cell cancer. A chance meeting with Erin on-line, paved the way to her Tennis Ball Fundraiser held during the Western Cup Challenge, the biggest dock diving event in Western Canada. Erin said, "I know so many people

and dogs who have been touched by cancer. We appreciate the opportunity to give back to Smiling Blue Skies in thanks for all of the work they do fighting this disease and providing support for owners of affected dogs."

This summer, the Dock Diving pool was filled with 121 numbered tennis balls. For every \$10 donated, people chose a lucky number between 1 and 121. Some people chose more than one and in no time at all, the fundraiser was "sold out." The tennis balls were dumped into the pool, stirred around by volunteers, and then it was game time between dock diving competition splashes.

Cancer survivor Chester drew the first ball and the grand prize winner was treated to a "Toy Mountain!". There were smaller prizes too and participants went home with terrific swag bags.

Barrie's 1st Annual Smiling Blue Skies Walk for Canine Cancer took place at beautiful Sunnidale Park, helmed by Tina Escobar and raised \$6,600. Thanks to Rock 95 and Kool FM for spreading the word and to everyone who attended the walk.

The 3rd Annual Art Auction and Raffle in memory of artist and dog-walker Malak Tabbara, with MC Global News Chief Meteorologist Anthony Farnell, best friend of Storm the Weather dog, is being held at Toronto's "The Duke Live" on November 16, hosted by Kim Denomme and her team. Come and see some wonderful art donated by local artists and pieces from Malak's archives. Check for details for this awesome event on the Smiling Blue Skies Community to End Canine Cancer — Toronto Facebook page and the Smiling Blue Skies website.

If you are looking for the perfect holiday gift, check out our "Kindred Spirits" HOPE candle, a special collaboration with Tofino Soap Company. 100 per cent of the proceeds are donated to innovative cancer research.

Thanks to you we ARE making a difference in the fight against cancer, on behalf of ALL of us!

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

www.smilingblueskies.com

In photo: Tennis Ball Fundraiser. Photo provided by Suzi Beber.

Honour a Best Friend and Give Back to Pet Health

Did you know that people and veterinary hospital teams can support OVC Pet Trust through our Pet Memorial Program?

Each year we send more than 45,000 memorial letters to pet owners who have lost a pet.

Gifts made in honour or in memory of a beloved pet support advancements in companion animal health at the Ontario Veterinary College.

Thank you to everyone who chooses to give back to improving and advancing companion animal health and well-being in this meaningful way.

Visit our website to learn how to make a gift at www.pettrust.ca/donate

Share Your In Memory Story

Pets leave paw prints on our hearts. Have you recently lost a beloved companion whose memory has been honoured with a gift to OVC Pet Trust?

Connect with us on social media or contact us via email to share your story.

Email:
ovcpet@uoguelph.ca
facebook.com/ovcpet
twitter.com/ovcpettrust
Instagram:
[@ontvetcollege](https://www.instagram.com/ontvetcollege)

PETS IN MEMORY

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



Remembering Dalwood Blind Love 2003 – 2018

Dear OVC Pet Trust,

We first laid eyes on Dalwood, our handsome 10-week old black Labrador Retriever, on October 21, 2003 in the Village of Dalwood, Devon, England, just days before we brought him home to Canada. Our fondest memories of our boy are the simple things. Our countless days together in our gardens, Dalwood lounging in the sunshine, supervising us doing yard work. Our summer vacations at our home in Tobermory, swimming in Lake Huron and soaking in the cottage life on our front porch. The way he sprawled out on the floor or in his basket when he slept. Our walks together each morning – the best part of our day. Dalwood would have his nose to the ground, taking in the sights and sounds of our adventure. He was energetic, spirited and regularly made us break out in spontaneous laughter. Our times together in the show ring, his ears and eyes attentive to what was expected of him. He gave back to us every day. He was our everything. We were there for him; he was there for us. It was a true partnership. A lot of people have that with their dogs and our relationship with Dalwood was no different: we were blessed to share meaningful and unconditional companionship with our beloved best friend.

When he was three years old, Dalwood was diagnosed with PRA, or progressive retinal atrophy, a condition that causes degeneration of the retina and progressive vision loss in dogs. He started to go blind, first with night blindness at age six and by 10 years, he was completely blind. Together, we made adjustments – physically and emotionally – to help him continue life as normal as possible. In the last year of his life he went deaf. Dalwood shared his

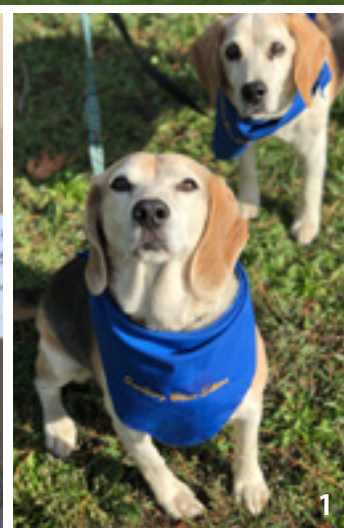
challenges with us and we accepted them wholeheartedly. We spent all of his life loving him as best as we knew how, if only to give him an ounce of the love he gave us back in return.

This July marked one year since Dalwood's passing. We still have his bowl, his leash and his bed in their usual spot in our home. Grief can last for a very long time. We know it is a process. But, we have found ways to remember and memorialize our dog – ways to pay tribute to him, but also to help us in our grieving. We planted a Celebration Tree. We had a local artist create a visual portrayal of his life. We put our photo collection on a digital frame, randomly playing and reflecting on our favourite memories. We wrote an obituary to honour his life and we journalized and made a scrapbook of our most cherished remembrances. We returned to England on a pilgrimage this spring to the villages where he was born and where his father lived. We honour him and we pay tribute to his life by way of our donations to OVC Pet Trust: we are keeping his memory alive and helping other pets at the same time. And the Dalwood Memorial Scholarship has been created for a deserving fourth-year OVC student.

Dalwood made our life whole and it was a joy to share our lives with him. He will forever be alive in the deepest part of our hearts.

"We can hold you no longer, but will love you forever."

Donna Ross & Peter Szmidt
Merrickville, Ontario



1. This fall the 1ST ANNUAL SMILING BLUE SKIES BARRIE WALK FOR CANINE CANCER raised \$6,600.

2. SAULT STE. MARIE KOA owners Joan and Bill Richard raised \$1,500 for The Smiling Blue Skies Cancer Fund through various agility trials.

3. Participants at the DOGWOOD PACESETTERS CANINE SPORTS CLUB'S

FUN MATCH fundraiser in Langley, B.C. in support of The Smiling Blue Skies Cancer Fund; \$5,000 raised.

4. This August, REN'S PETS celebrated "DOGUST", and together with their customers, raised funds at their stores across the country for OVC Pet Trust. \$14,000 raised and counting! Watch our social media channels for the official announcement in November.

5. May 5, 2019 marked the 17TH ANNUAL SMILING BLUE SKIES CALGARY WALK FOR CANINE CANCER, raising a grand total of \$24,000! Photo credit: Jillian Gibson.

6. University of Guelph student Nicole larusci organized the second PUNK FOR PAWS, a live concert fundraiser, this May and raised \$2,025 for OVC Pet Trust.

COMING EVENTS

JANUARY 30 – FEBRUARY 1, 2020
Ontario Veterinary Medical Association (OVMA) Conference and Trade Show – Toronto, Ontario. Booth #119.

MARCH 5-7, 2020
Ontario Association of Veterinary Technicians (OAVT) Conference – Niagara Falls, Ontario. Booth #114.

MARCH 2020
10th Annual OTS Dog Jog Arboretum, University of Guelph
Everyone is welcome to join us for this student organized non-competitive walk/run. Watch our website for details.

MARCH 21-22, 2020
OVC Teddy Bear Surgery at College Royal Open House – University of Guelph.

OVC Pet Trust is part of the University of Guelph, a registered charity. You can visit our website to support companion animal health at www.pettrust.ca.

The University of Guelph
charitable registration number:
10816 1829 RR 0001

WWW.PETTRUST.CA

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50 Stone Road East, Guelph, Ontario Canada
N1G 2W1

Attention: OVC Pet Trust
OVC Main Building, Dean's Office