

Best friends

THE PET MAGAZINE OF THE ONTARIO VETERINARY COLLEGE

An Investment in the Future of Veterinary Medicine

OVC HEALTH SCIENCES CENTRE OPENS NEW SURGERY AND ANESTHESIA FACILITIES, MADE POSSIBLE BY OVC PET TRUST'S FRIENDS TOGETHER FOR LONGER CAMPAIGN.

UNIVERSITY
of GUELPH

IMPROVE LIFE.



FROM THE DEAN, ONTARIO VETERINARY COLLEGE

2021 marks the 35th anniversary of OVC Pet Trust. From the very beginning, OVC Pet Trust has supported innovations in all aspects of pet health to help pets everywhere live longer, healthier lives. In the same way that improving the lives of animals is a central tenet of everything we do at the Ontario Veterinary College (OVC), the human-animal bond has always been at the heart of OVC Pet Trust. We honour the relationship between pets, their humans and veterinary caregivers through supporting healthcare,

research and education that ultimately improve the prevention, diagnosis and treatment of diseases of pets.

OVC Pet Trust was founded in 1986 by a group of dedicated volunteers to support the work of veterinary specialists and researchers at the Ontario Veterinary College who were committed to advancing the health and well-being of our animals – the companions and family members who give us comfort, joy and unconditional love.

Over the past 35 years, and now with more than \$73.5 million raised, OVC Pet Trust has been fortunate to establish long-standing partnerships and friendships that have fuelled our shared mission of working to improve life for our beloved pets in many areas of health and disease. With your support, OVC Pet Trust invests more than \$500,000 each year

into research projects and equipment in many different disciplines of veterinary medicine, including: cancer, cardiology, diagnostic imaging, emergency and critical care, infectious disease, internal medicine, neurology, nutrition, ophthalmology, pain management and anesthesia, surgery, the human-animal bond and much more.

Together with our supporters, we have made many advances in pet health. As you'll read in this issue of Best Friends, I was proud to mark the opening of new surgery and anesthesia facilities within the OVC Health Sciences Centre this past May. The transformation of these critical clinical spaces within our teaching hospital was made possible by OVC Pet Trust donors and represents an important milestone on our journey to upgrade aging infrastructure in our hospital and teaching environments. This is just one of the many accomplishments and goals we've reached over the past 35 years, but our work is far from complete. We hope you'll stay in touch and connect with us as we look to the future and many more years of supporting vital projects that will impact animal health for the better.

Thank you to our entire OVC Pet Trust community for your dedication, your passion and your commitment to making the world a better place for people and their pets over the past 35 years. The Ontario Veterinary College is extremely fortunate to benefit from your generosity.

Dr. Jeff Wichtel
Dean and Professor
Ontario Veterinary College
University of Guelph

learning and discovery for the health of all species, including our own. In 2021, Quacquarelli Symonds (QS) ranked OVC 1st in Canada, 3rd in North America and 5th in the world for veterinary science amongst veterinary schools worldwide.

BEST FRIENDS

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BACK COVER
#PETTRUSTPALS



FROM THE DESK OF OUR DIRECTOR

I'm thrilled to share the wonderful news that OVC's new surgery and anesthesia facilities officially opened in May 2021. These upgrades were made possible by OVC Pet Trust supporters who helped us surpass our \$9-million Friends Together for Longer campaign. The extensive redesign and transformation of our clinical facilities at the OVC Companion Animal Hospital will allow us to remain at the forefront of veterinary health care, education and discovery for many years to come.

The new areas provide a modern, state-of-the-art environment for our veterinary teams to care for our companion animal patients. Undeniably, they will also have a lasting impact on the learning and development of the future generation of veterinary professionals who are educated here, and who will then go on to treat thousands of pets in communities across Canada and even around the world. Most of all, the new facilities bring hope for pet owners, whose beloved companions need advanced, life-saving care. We could not be more grateful to our incredible donors who partnered with us to complete this major endeavour. Thank you. Read more about our new surgery and anesthesia facilities in a special feature story on page 16.

As always, OVC Pet Trust continues to invest in projects that are advancing animal health. From investigating a new chemotherapy treatment for canine hemangiosarcoma, to exploring fluorescent imaging of the liver in dogs undergoing gallbladder surgery, to improving chronic kidney disease in cats, our researchers are at the forefront of veterinary medicine. Learn more about newly-funded projects to enhance companion animal health and well-being in Your Gifts at Work on page 26.

2021 marks 35 years of OVC Pet Trust. Whether you have a long history with OVC Pet Trust or you are reading Best Friends for the very first time, we appreciate you being part of our community of pet owners and animal lovers. Your support of OVC Pet Trust fuels our shared mission of working to improve life for our beloved animals. Thank you for your continued dedication to help the pets we love, live longer, healthier lives.

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

CELEBRATING 35 YEARS OF OVC PET TRUST



Together, we are making a true difference in the lives of our beloved animals.

OVC Pet Trust support over the past 35 years — with more than \$73.5 million raised — has helped advance companion animal health and well-being and continues to change the future of veterinary medicine in three major areas.

HEALTHCARE: WE PUSH THE BOUNDARIES OF WHAT'S POSSIBLE



From the very beginning, OVC Pet Trust has supported clinical innovations to help pets, everywhere, live longer, healthier lives. Because of OVC Pet Trust supporters, our state-of-the-art facilities offer animals the very best in advanced, complex and critical care, as well as access to the most innovative treatment options and novel clinical trials in the world. Modernization of infrastructure supports the foundation of care, allowing clinical teams to practice veterinary medicine in modern and technologically-advanced facilities.

EDUCATION: WE TRAIN THE FUTURE GENERATION OF VETERINARY PROFESSIONALS AND SPECIALISTS

OVC Pet Trust invests in learning and education for the brightest minds and the future generation of global experts in the veterinary profession. Funding supports a variety of specialty training positions for licensed veterinarians who are pursuing advanced education to become board certified veterinary specialists. Funds raised also help to train the next generation of veterinary professionals in the OVC Health Sciences Centre. Each year, OVC graduates from the Doctor of Veterinary Medicine (DVM) program go out into the world and work in communities across Ontario, Canada and around the globe.

RESEARCH: WE INNOVATE TO IMPROVE LIFE

Our innovative discoveries improve life for animals. Scientists and researchers at OVC are on the forefront of veterinary medicine and their respective fields of expertise. OVC Pet Trust funds ground-breaking research and discovery to improve the health of dogs, cats and other companion animals. Some of the projects our experts are investigating not only have implications for companion animals but may also have translational benefits for human health too.



ONTARIO VETERINARY COLLEGE
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WWW.PETTRUST.CA

1986 OVC Pet Trust was established as a way for people to memorialize and honour their pets, family and friends to fund research to either prevent or treat a number of diseases that affect companion animals.

CAPITAL IMPROVEMENTS TO MODERNIZE VETERINARY CARE

1980s

RADIATION THERAPY INTRODUCED FOR CANCER TREATMENT

A Cobalt-60 radiation therapy unit was donated to the OVC by the Princess Margaret Hospital in Toronto with financial support from OVC Pet Trust for the physical facility and installation. Cobalt therapy, the medical use of gamma rays, was widely used beginning in the 1950s. This was the world's first cancer radiation treatment, producing a beam of gamma rays directed into the patient's body to kill tumour tissue. The unit became the first super voltage radiation therapy apparatus used in veterinary medicine in Canada.



2012

FIRST OF ITS KIND IN CANADA: OVC OPENS ANIMAL CANCER CENTRE

OVC Pet Trust raises \$13.5 million to open the first of its kind animal cancer centre in Canada — with a significant estate gift from the late Mona Campbell, a long-time animal advocate. The centre is named in her honour.

The cancer centre maximizes the quality of life for animals living with cancer and provides world-class training for veterinarians, trainees and cancer specialists. The centre emphasizes an interdisciplinary team approach to treatment, which includes: medical, radiation and surgical oncologists; technicians, nurses and support staff; interns, residents and graduate and veterinary students; and even a clinical counsellor to help clients make difficult decisions. The centre provides access to clinical trials, state-of-the-art technology and a wealth of resources for pet owners, including: chemotherapy; radiation therapy delivered by a linear accelerator; immunotherapy; a companion animal tumour sample bank for storing biopsies for future research; examination, treatment and procedure rooms; a waiting room; and a family quiet room — with the generous support of The Smiling Blue Skies Cancer Fund and OVC Pet Trust.

2007

THE INSTITUTE FOR COMPARATIVE CANCER INVESTIGATION (ICCI) OPENS

Launched in 2007, the ICCI is devoted to providing comprehensive cancer treatment for companion animals and pursuing collaborative research to improve both the understanding and treatment of cancer in animals and humans. The ICCI was the first of its kind in Canada, taking an integrative approach that combines expertise in cancer biology and veterinary medicine. The associated Mona Campbell Centre for Animal Cancer opened at the OVC in 2012. Its purpose is to care for pets with cancer while advancing clinical research and educating future cancer specialists. Faculty include medical, surgical, and radiation oncologists and collaborating veterinary pathologists.



2004

MRI FACILITY FOR CLINICAL PATIENTS

In 2004, a full-sized MRI, used for imaging of clinical patients and applied research, was installed at the OVC, offering clinicians the best possible detail of images of soft tissue in an animal's body. The current MRI at the OVC accommodates patients such as cats, dogs and pigs and can also provide images of the head, neck and limbs of large animals. MRI contributes to the diagnosis and/or location of lesions due to conditions such as epilepsy, cancer, arthritis and visual impairments. The MRI cost \$5 million and is the result of 10 years of planning and fundraising. Its acquisition was supported by the Canada Foundation for Innovation, the Ontario Innovation Trust, and OVC Pet Trust, which contributed \$1.45 million.

RESEARCH FACTS

In its first year, OVC Pet Trust awarded researchers at the Ontario Veterinary College a total of \$33,200 to fund 14 projects investigating various areas of canine and feline health as well as examining the human-animal bond. Now, 35 years later, OVC Pet Trust has invested millions of dollars into more than 710 research projects at OVC.

2021

OVC UNVEILS NEW SURGERY AND ANESTHESIA FACILITIES

In 2021, new world class surgery and anesthesia facilities opened at the OVC. New clinical spaces will allow OVC to remain at the forefront of veterinary medicine, raise the standard of care and provide the most advanced techniques, diagnoses and treatment in Canada. These new facilities will create new collaborative treatment spaces that incorporate multiple medical specialties and enhance our ability to manage serious illnesses that require complex surgeries or treatments. Read the full story on page 16.

2021 AND BEYOND

RAISING FUNDS FOR CRITICAL CARE & SPECIALTY SERVICES

The expansion and creation of new spaces for critical care and specialty services at OVC is urgent and essential to continue to help the sickest of the sick, bring the medicine of tomorrow to our patient's bedside and allow OVC to keep pace with the modernization of health care. The renovations will: dedicate space for veterinary emergency services, which previously coexisted within the Intensive Care Unit (ICU) itself; expand the ICU to a larger, new space, increasing capacity by 50 per cent; and create two specialty services suites for the Neurology and Ophthalmology teams. This expansion will cost a total of \$8.36 million. Learn more at www.pettrust.ca.

DID YOU KNOW? Toronto businessman and philanthropist Roger Warren helped build OVC Pet Trust from the ground up and has undoubtedly influenced its growth and success. Warren was a founding member of the OVC Pet Trust board in 1986 and has also served as board chair. Now, 35 years later, he is an honorary member of the board and continues to be a generous donor and valued advisor to OVC Pet Trust. Warren gives credit to the other players involved in the initial formation of OVC Pet Trust, including Dr. Ole Nielson (OVC Dean 1985 - 1994), Dr. Alan Meek (OVC Dean 1994 - 2005) and Wayne McDonnell (Medical Director of the Veterinary Teaching Hospital, now known as the OVC Health Sciences Centre).

THE CATCH WITH CANNABIS

ACCIDENTAL POISONING AMONG DOGS IS ON THE RISE AND OVC RESEARCHERS ARE EXPLORING WHY

Cannabis use is rising in popularity thanks to more relaxed public policy in regions across North America. But where there's "weed," there's a way – for dogs to become accidentally poisoned.

A new first-of-its-kind research study from the University of Guelph states that between 2009 and 2014, in locations across the U.S. where cannabis legislation became more lenient, there was an increase in cannabis poisoning cases among dogs. It is possible that the situation is similar in Canada, where cannabis products have been legalized and more widely available since October 2018.

"It's statistically significant that as penalties for use and possession of cannabis were reduced in various regions, there was also an increase in cannabis poisoning calls in dogs," says Mohammad Howard-Azzeh, a PhD candidate who is the study's lead author.

HOW MUCH IS TOO MUCH?

Cannabis products containing THC – the psychoactive ingredient that produces the "high" effect in humans – can be toxic to dogs. Knowing how much THC an animal has been exposed to after accidental ingestion can be difficult for veterinarians to determine from owner reports.

"When a dog consumes products with THC, it can lead to a variety of problems including a rapid heart rate, vomiting and even seizures," says Dr. David Pearl, a veterinarian and professor in the Ontario Veterinary College's (OVC) Department of Population Medicine. "The symptoms

depend on factors such as the dose and size of the dog, and the effects can be quite distressing for the dog and the owner."

Pearl says that unlike other types of drugs such as opioids, there is no reversal agent for a dog that has consumed cannabis. Veterinary clinics can provide supportive care, based on clinical presentation of the patient with cannabis toxicity.

SOCIOECONOMIC FACTORS

Howard-Azzeh and Pearl worked with data from AnTox, a veterinary database that stores comprehensive clinical animal toxicology data related to calls to the Animal Poison Control Centre (APCC) of the American Society for the Prevention of Cruelty to Animals. They categorized data into three levels: from states that had legal cannabis access, states where access was restricted except for medical use, and states where access was fully restricted.

The study also looked at socioeconomic factors, and factors relating to the dogs at the time. Accidental poisoning was more common in counties with high income variability and in urban, rather than rural, areas. Calls about accidental cannabis poisoning more commonly related to smaller, male and intact (not neutered or spayed) dogs.

"The data shows that the risk of cannabinoid poisoning occurring in a dog depends somewhat on its environment," says Howard-Azzeh. "It also shows that policies that seem to relate only to humans can have a broader impact, and there is a need to bring more awareness to the issue." 🐾

HOW TO AVOID POISONING YOUR PET

"People who use cannabis recreationally need to safeguard their supply properly to make sure their dog, and any other vulnerable member of the household, doesn't have access to chew or eat it," says Howard-Azzeh. He adds that edible products such as brownies may be particularly tempting for a dog.

Pearl says a combination of two toxins in an edible product – such as chocolate and cannabis – can complicate health concerns even further and add to the animal's distress. But home access is not the only culprit.

"We also have to be aware that people who smoke cannabis in public areas such as parks may leave their butts behind, and there's a risk of a dog picking it up," says Howard-Azzeh. "Humans need to be aware of the growing access to drugs in our environment so we can limit accidental exposures."

This research was funded by an NSERC Discovery Grant awarded to Dr. David Pearl.

Am I a cat whisperer?

COULD YOU IDENTIFY A CAT'S MOOD THROUGH ITS FACIAL EXPRESSIONS?



If you've ever tried to interpret how your pet cat is feeling, you're not alone. This mystery of feline mood is what motivated University of Guelph researcher Dr. Georgia Mason to investigate whether people can accurately identify how cats are feeling based on their facial expressions, a topic that has attracted very little research in the scientific community until recently. After years of speculating, she's been able to interpret her three cats' facial cues, Mason wanted to scientifically put others' ability to decode cat expressions to the test.

While research has shown many animals like mice, rats, pigs, horses and rabbits have strikingly similar facial expressions when they are in pain, minimal investigation has been done on the topic of pet cats, a creature with a well-known reputation of being mysterious and difficult to decipher.

Mason collaborated with OVC professor Lee Niel, and postdoctoral researchers Lauren Dawson and Jenna Cheal, to develop an online survey where more than 11,000 participants watched short video clips of close-up cat faces as they experienced various positive and negative situations.

The study revealed most participants were not successful at judging whether a facial expression was "positive" or "negative." However, participants were more likely to do well on the survey if they were a woman, a young millennial or a veterinary professional. Of the thousands of participants, 13 per cent achieved an "excellent" score by correctly identifying between 15 and 19 of the 20 videos they viewed.

"Interestingly, being a cat owner or cat lover (93 per cent of people who did the survey had lived with a cat as an adult) did not help participants better read cats' facial expressions," Mason explains. "Our study revealed that professional veterinary experience, not personal experience or feelings, was a key to success and in general, people were better at reading cats in a positive situation compared to a negative one," she adds.

This study may open the door to explore exactly how cats' faces reveal their emotional states and allow for the development of tools that would help more people become better at understanding them.

"Cats are sending us subtle signals that a lot of us likely miss, and having the skills to accurately interpret how they're feeling might mean we're also able to better understand their needs and preferences both at home and during veterinary care," says Niel, adding that we know from previous research that cats are taken to the veterinarian less often than dogs and are handled differently during exams.

The researchers hope that one day we will be able to identify specific signs and facial cues to look for to assess positive and negative welfare in cats. In the same way posters in veterinary hospital settings depict body condition scoring to inform about healthy weight, maybe one day we will have something similar for facial expressions.

"Ultimately having the ability to understand feline facial cues can help both pet owners and veterinary staff improve the health and welfare of cats," says Mason. ✨

DR. GEORGIA MASON IS THE DIRECTOR OF THE CAMPBELL CENTRE FOR THE STUDY OF ANIMAL WELFARE (CCSAW) AT THE UNIVERSITY OF GUELPH AND A PROFESSOR IN THE COLLEGE OF BIOLOGICAL SCIENCE'S DEPARTMENT OF INTEGRATIVE BIOLOGY.

MASON AND NIEL'S STUDY HAS BEEN FEATURED IN NATIONAL AND INTERNATIONAL MEDIA OUTLETS INCLUDING NATIONAL GEOGRAPHIC, THE WASHINGTON POST, DAILY MAIL, REAL TIME WITH BILL MAHER, CBC, CTV AND MORE.

To test your own cat-reading abilities, join the more than 400,000 people who have taken the research team's interactive quiz:

uoguel.ph/catfacequiz

In photo: Dr. Brigitte Brisson performs surgery in the new facilities at the Ontario Veterinary College. Photo credit Spencer McMillan.



a day in the life of a Small Animal Surgeon

The operating room (OR) is a magical place. There's an exquisiteness about it that's captivating and invigorating for a visitor experiencing it for the first time. It's messy, yet sterile. Tranquil, yet nerve-wracking. Serene, yet intimidating. Bright lights and beeping monitors take over the senses. One can appreciate the complexity – and beauty – of the fine balance between life and death here. At the same time there's an overpowering sense of security and comfort that fills the space. This is where the fixers, the menders, the healers and the helpers work.

Dr. Brigitte Brisson is one of the fixers and there's a swiftness, a powerful energy, a purposeful precision that's unparalleled in her operating room. Brisson is a board-certified small animal surgeon and has worked in clinical practice for more than 25 years.

Many OVC faculty like Dr. Brisson are not only clinicians but are researchers too – scientists who are in pursuit of new findings, new learnings and new answers to help manage health and disease in pets in their respective area of expertise, which sometimes even lead to helping people too. They're also delivering care in a teaching hospital; imparting knowledge, clinical skills and inspiration to the future generation of veterinary professionals, which is compelling to observe in Dr. Brisson's OR. The

value of mentorship and hands-on learning is vital for trainees working towards a career or specialization in veterinary medicine.

Welcome to the world of small animal surgery at the OVC Health Sciences Centre (OVC HSC). Join us as we go behind the scenes for a day in the life of a companion animal surgeon in the James Slaughter Advanced Surgical Complex, the new home of OVC's Surgery Service. The new space was made possible by a \$2.5-million gift from Toronto philanthropist Emmanuelle Gattuso, part of OVC's new \$9-million facility improvements. The complex opened its doors in May 2021; it contains eight surgical suites, a significant infrastructure upgrade from the three suites in the old operating spaces that were originally built in the 1950s. The Surgery Clinical Service includes two components at the OVC Companion Animal Hospital: Soft Tissue Service and Orthopedic Service. Together, these two services offer a full range of surgical procedures, including minimally invasive and interventional procedures, abdominal and thoracic surgery, oncologic and reconstructive surgery, cardiovascular surgery and neurosurgery.

Surgery is both an art and a science, and surgeons are experts at their craft. They have a skillset that allows them to perform advanced lifesaving medical interventions under intense

pressure and often difficult conditions. Veterinary surgeons require intricate attention-to-detail, exceptional manual dexterity, and quick and efficient problem-solving skills. It also takes an abundance of stamina and resilience to perform complex procedures on critical patients in a demanding back-to-back schedule, and years of advanced training including an internship and residency after veterinary school.

If surgery was a sport, it would be an ultramarathon. The long hours, minimal breaks and fierce meticulousness are overwhelming. The flurry of activity inside and outside the operating room is never-ending and at times, grueling, even for the most seasoned practitioners. The patience, precision and perseverance required to succeed in this specialty is infinite. It's a team effort and everyone's in it for one reason: to help animals.

The anticipated flow of the day is mapped out on a colour-coded schedule displayed on a digital screen positioned at the central nurses' station. The planned procedures and cases are plotted in advance as much as possible. In a hospital that delivers the most complex care to the most complex patients, even the best laid plans must be overturned to accommodate unpredictable situations, occurrences that happen most days on OVC's clinic floor.





In photo: Inside the OVC Health Sciences Centre, Dr. Brigitte Brisson and her team perform surgery in the James Slaight Advanced Surgical Complex. Photo credit: Spencer McMillan, spencermcm.com.

MORNING - DAY ONE

Clinic duties are divided by appointment days and surgery days. Today will be dedicated to surgery. Brisson is joined on clinics this week by two residents: Drs. Samantha Stine and Philippe Larose. Two rotating interns are also on the service this week: Drs. Adam Quinlan and Isabela Del Carpio, both recent veterinary school graduates. For many weeks of the academic year, the team is joined by 6 to 8 fourth year DVM students on their surgery rotation – a key component to their final year of clinical training in vet school – but there are no students on rotation this week.

Four surgeries in dog patients have been scheduled for the hours ahead: an intrahepatic shunt (an abnormal vessel in the liver that bypasses blood from the intestines), a ventral slot (a common surgical procedure to relieve disc herniation in the spine), a bilateral sialoadenectomy (to remove damaged salivary glands / ducts) and a wound closure in a patient with an antibiotic-resistant infection.

Millie, a four-year-old Labrador Retriever is induced by the anesthesia team and surgically prepared for Dr. Brisson and her team. The interventional procedure will involve fluoroscopy, a medical imaging

technique that uses real-time X-ray technology to visualize the inside of the body. “Everyone’s wearing lead?” Brisson asks. Wearing lead personal protective equipment (PPE) reduces exposure of ionizing radiation during the procedure.

After an hour in the OR, it becomes clear that the previously placed stent and coils prevent the passage of the catheter for safe delivery of additional coils. The only option would be an approach through the spleen, something the team would need to discuss with Millie’s parents. “Thanks everybody – let’s close”, Brisson says. She provides guidance on Millie’s recovery in the OVC Intensive Care Unit (ICU), advising the team to ensure pressure is applied on the incision along Millie’s neck while the tube that has helped her breathe during surgery is removed.

Then, after a quick review of a scan of another patient in the duty office, Brisson heads to a quiet exam room to call Millie’s owner and provide an update. Brisson uses analogies to describe what’s happening in Millie’s body and the options available for Millie’s people to explore; how these options could impact her quality of life; how to move forward; and what happens to most dogs with Millie’s condition. “We’ll take good care of her – we promise,” Brisson smiles.

AFTERNOON - DAY ONE

The surgical aseptic technique is a collection of practices that help protect patient incisions from contamination. The sterile field in the OR is a sacred space – it is the area in the OR that is free from disease-causing bacteria or microorganisms. All supplies, equipment and instruments in the surgical field are pristine, meticulously cleaned and sterilized. It’s of utmost importance to maintain the sterile field throughout any procedure and this is strictly enforced in each and every OR.

Brisson’s next case is a dog named Peanut who will undergo a ventral slot surgery for a herniated disc in his neck. In another OR, Dr. Stine is operating on a dog named Lucy. As the team works, there is a continuous shifting in the schedule to effectively triage the urgent cases that have arrived today. This involves a high level of coordination across the entire OVC HSC. Like a domino effect, changes in the surgical team’s caseload mean changes for the Anesthesia Service, the Intensive Care Unit and the Diagnostic Imaging Service – and potentially other specialty areas too. Specialists are consulted to determine what order the next two surgeries will be in and how best to coordinate sedation and administration of anesthetic drugs to maximize patient comfort. After about an hour in the OR with Peanut, the surgery is a success and without missing a beat, Brisson heads right into Stine’s spinal surgery with Lucy.

Brisson shares research with the team as she works, quizzing and teaching in each procedure as the day unfolds. “What do you think? What do you see? How do we best proceed?”

Next up is Archie, whose bilateral sialoceles surgery was delayed by the day’s emergencies. This condition occurs when a collection of saliva leaks from a damaged salivary gland or duct and accumulates in the tissues that become inflamed. While Archie is prepped, Brisson takes a five-minute break for a late lunch and then scrubs into surgery. Like a dance, the ebb and flow of the day is well underway. Archie is still in surgery with Brisson as Lucy wakes up in anesthesia recovery and is moved to the ICU, and a Golden Retriever named Russell is prepared by the anesthesia team for surgery with Stine.

It’s clear surgeons are used to running on adrenaline. Endurance, tenacity and passion are key to thrive in this profession.

EVENING - DAY ONE

Time seems to stand still in the OR.

As a surgeon, you can’t be afraid to (literally and figuratively) get your hands dirty.

As the evening is underway, Archie is in the home stretch of his surgery, and the team notes that it ended up being a bit more involved than they’d initially anticipated. This is a common situation in surgery. Surgeons rely on diagnostic imaging to prepare and plan their best course of action – but sometimes once they’re inside, they must adapt and change strategies quickly. The team flushes Archie’s wound with sterile saline and inserts a drain as the surgery wraps up.



PATIENT ARCHIE

In photos: OVC patients Archie (top right) and Russell (bottom right) are prepared for surgery in the Kim and Stu Lang Anesthesia and Pain Management Unit. Photo credit: Ashleigh Martyn.



PATIENT RUSSELL

In photo: Dr. Brigitte Brisson performs an interventional procedure. Photo credit: Spencer McMillan, spencermcm.com.



The rest of the evening is jam-packed: telephone calls to update owners are made; checks and physical exams are underway in the ICU on admitted and recovering patients; there is case review, paperwork and preparation for the next day. Patients who are recovering from surgery typically stay in the ICU for approximately 24 hours and are monitored 24/7 by the Emergency and Critical Care team.

Brisson stops to speak with Larose, one of her residents, about the research component of his residency and an upcoming surgery the following week that will be part of this study: an OVC Pet Trust-supported project that is investigating how to improve patient outcomes and surgeon visualization in dogs who undergo laparoscopic gall bladder removal surgery with the use of fluorescent imaging of the liver. It is a novel imaging procedure in human and veterinary medicine and this research is the first of its kind in dogs.

MORNING - DAY TWO

The clinical training required to become a veterinary surgeon is rigorous and learning occurs everywhere on the clinic floor of OVC's teaching hospital.

Early mornings involve rounds, case discussion and teaching. The team follows up on their hospitalized patients – Millie, Peanut, Lucy, Archie and Russell – who underwent surgery the day before. Morning

follow-up calls with owners are made and discharge plans are underway. By mid-morning, Cashew the cat, a patient with an obstructed ureter (a blockage in the tube that carries urine from the kidney to the bladder), is undergoing a subcutaneous ureteral bypass (SUB) which will restore the flow of urine from the kidney to the bladder through a man-made tube, and provide immense relief for Cashew, who has been developing renal failure.

Shortly before lunch, Cashew's surgery is wrapping up; Brisson says it was the outcome she'd hoped for. She takes off her lead equipment and dosimeter, a device worn by all during fluoroscopic procedures, and checks in on Tupac, a cat cancer patient, in the anesthesia prep room.

AFTERNOON - DAY TWO

Like a well-oiled machine, the surgery support team work in the background. They continuously stock inventory, track patient billing, perform cleaning and sterilization, and flip ORs so they are ready for the next procedure.

Chest radiographs, also known as X-rays, have been ordered for Tupac – if his cancer has spread to his lungs, surgery will not move forward. ICU clinician Dr. Xui Ting Yiew pops in to discuss Cashew's care and recovery plan with Brisson. At the same time, the triage technician inquiries about Buddy, an oncology patient at the cancer centre with a

Adjustments are made to the schedule and the team adapts. Brisson spends 21 weeks of the year on clinics – it's just one of the ways she fulfills her teaching duties as a professor in the Department of Clinical Studies at OVC. She also lectures and instructs labs for student veterinarians in addition to her research and service responsibilities. As a young adult, Brisson considered veterinary medicine and pediatric neurosurgery as potential career paths. It was her love for animals, the variety of conditions and species and the diversity of diseases, that ultimately drew her to veterinary medicine.

The Diagnostic Imaging team, who also reviewed the previously performed CT scan, confirms that Tupac's cancer has not spread, and surgery is set to proceed. Tupac has one of the biggest sternal tumours Brisson has ever attempted to remove in a cat. Her goal is to excise the entire tumour along with a portion of the sternum and several ribs. A curative approach is the goal but it is not always possible depending on the individual case. Given the size of the tumour and its location, clean margins are unlikely to be achieved for Tupac but his owners want to give him a chance.

"We've got you," Brisson whispers to Tupac, as she dons her gown and gloves up.

After an almost two-hour surgery, Brisson and her team successfully resect the entire tumour and save most areas in the surrounding tissue in the process, allowing for complete closure of the large defect along the chest and abdomen.

Triage consults with Brisson about two other emergency cases as the afternoon flies by.

EVENING - DAY TWO

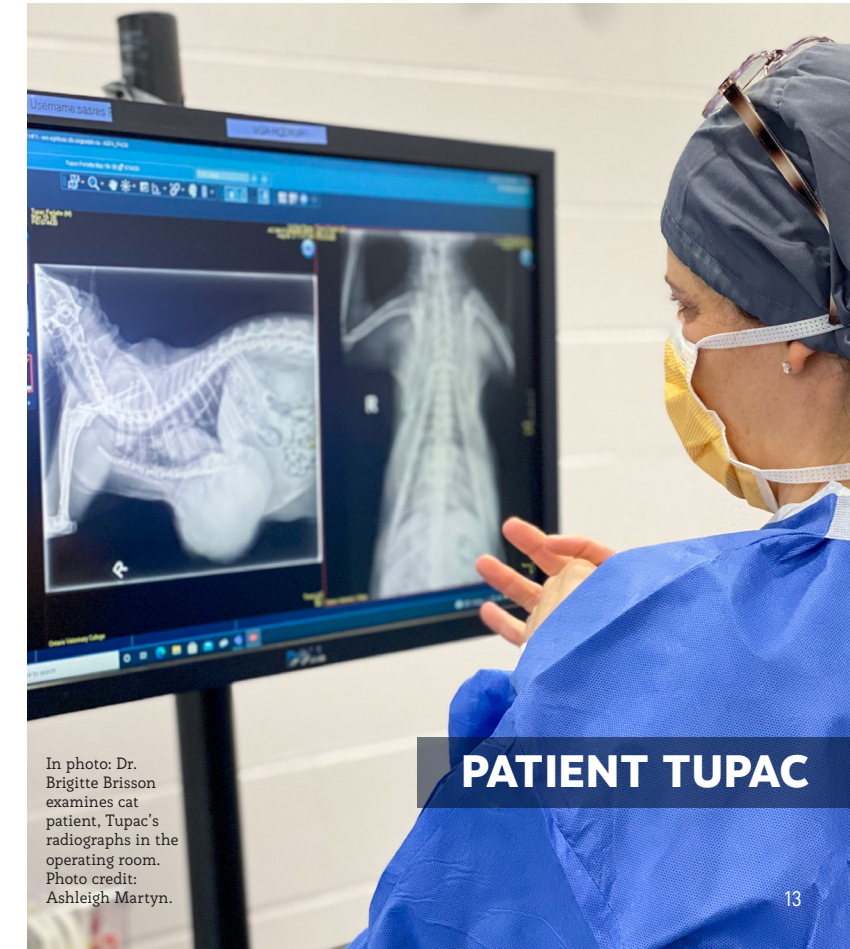
Brisson calls Tupac's owner to share the good news and guides intern Dr. Quinlan on Millie's discharge paperwork. Buddy, who has had his spleen removed, is waking up and is transferred to the ICU. Dr. Larose checks on Rex and Goose, two of his patients recovering from surgery earlier in the week. Rounds are underway. It's looking like it'll be a late night tonight – Brisson plans to make a quick trip home to see her family and then head back to the hospital in the late evening for an emergency referral – a very long day, with surgery expected into the early morning hours. It's all in a day's work for her and her team.

Even in the brief moments of respite, while expertly navigating the challenges of a typical day in clinics, Brisson enthusiastically champions the importance of teaching, mentorship and inspiring future medical professionals and veterinary leaders. "It's incredibly rewarding to see our students, interns and residents grow and progress through their surgery training," says Brisson. "The variety of cases and the challenges each day brings is why I love being a surgeon. It is truly a privilege to work with my OVC colleagues who all share a common goal of solving problems and helping pets and their families." 🐾

PATIENT LUCY



In photo: Patient Lucy recovers from spinal surgery. Photo credit: Ashleigh Martyn.



In photo: Dr. Brigitte Brisson examines cat patient, Tupac's radiographs in the operating room. Photo credit: Ashleigh Martyn.

PATIENT TUPAC



ACCESS GRANTED

REMY'S FUND PROVIDES IMPROVED ACCESS TO VETERINARY CARE FOR VULNERABLE AND DISADVANTAGED COMMUNITIES

Illustration of Kim and Stu Lang's dog, Remy, by Jane Dawkins.

The human-animal bond is critical to the health of many individuals, families and communities. According to the Canadian Animal Health Institute, it is estimated that more than half of Canadians share their life with a pet.

Each year, countless people cannot afford to pay for basic veterinary care. This financial barrier can lead to poor health outcomes for pets and the people who care for them. Historically, veterinary education has not focused on addressing this social inequity. The Ontario Veterinary College (OVC) and many community-based veterinarians are addressing these and other social justice issues with a goal of creating compelling, sustainable and equitable ways to improve access to care, including providing subsidies for treatment for pets of qualified clients.

In 2019, long-time OVC supporters Kim and Stu Lang kick-started Remy's Fund with a \$1-million endowment donation. A program of OVC Pet Trust, the fund is named in memory of the Lang's beloved dog Remy, a yellow Labrador Retriever they rescued. Two years later, the care Remy received at OVC saved her life. Remy's Fund is part of a larger gift to create the \$11 million Kim and Stu Lang Community Healthcare Partnership Program (CHPP), which is aimed at making veterinary care more affordable and accessible for underserved communities, including Indigenous communities as well as individuals who are experiencing poverty or housing insecurity.

HAPPY OUTCOMES WANTED

Since the CHPP was announced in 2019, OVC leaders have created a set of initial guidelines for how Remy's Fund will be managed, which will expand in the years to come as the fund grows through further donations. The fund is currently directed toward supporting pets and families from commu-

nities where OVC has established relationships and has done pro bono work in the past.

The fund will be used for medical expenses beyond basic preventive care. Dr. Shane Bateman, interim director of CHPP says, "We are still in the early days of establishing this fund, but for now it will be devoted to supporting the medical expenses of animals that have a good prognosis for one-time treatments that do not require ongoing or chronic care. We want to make choices that allow for as many happy outcomes as possible."

Remy's Fund has been put to work rather quickly during the pandemic. "When a client contacts us from a community where we are already providing outreach services, we have been able to triage the situation virtually. If we feel the patient needs specialized care and the family can get them to a nearby clinic, we provide financial support to qualified pets who meet the established criteria for patient eligibility."

CARE FOR PETS + EXPERIENTIAL LEARNING FOR STUDENTS

The CHPP project supports teams of student veterinarians to provide in-community preventive care such as spay and neuter procedures and vaccinations. When the team encounters patients who need additional care, or pets fall ill in between visits, then Remy's Fund will be utilized to support those families using a new model called incremental care, which involves critically assessing the patient and prioritizing diagnostics and treatments that match the client's resources or budget. Bateman expects that within three years, once the CHPP curriculum changes - which will include new clinical rotations and increased experiential learning opportunities - are implemented at OVC, Remy's Fund will not only support families needing extra medical care,

but will be critical in helping students to understand incremental care.

"Remy's Fund will do a lot of good work in these communities, and practical learning at this level is profoundly engaging and formative for students," says Bateman.

INSPIRE + CATALYZE POSITIVE CHANGE

In addition to Indigenous communities, Remy's Fund will play an important role in supporting pets of families and individuals experiencing poverty or trauma.

"For a person who has experienced trauma or violence by other humans, pets can be an important, loving, unconditional relationship in their life," says Bateman. "Pets are critical to a person's welfare and mental health, especially when other areas of their life are unstable."

Bateman is deeply grateful to Kim and Stu Lang for their vision to create CHPP.

"This program will allow OVC to be a leader in understanding how best to demonstrate the impact that providing veterinary care and improving animal health can ultimately have on human health and the health of the community," he says. "Most important, CHPP will inspire and catalyze positive change in the veterinary profession, arming the next generation of veterinarians with confidence, cultural competence and leadership skills to serve their communities and ultimately make the world a better place." ❖

WHAT IS THE KIM AND STU LANG COMMUNITY HEALTHCARE PARTNERSHIP PROGRAM (CHPP)?

Established in 2019 with an \$11-million donation - the largest single gift received by the University of Guelph's Ontario Veterinary College - The Kim and Stu Lang Community Healthcare Partnership Program (CHPP) aims to: identify, understand and remove barriers that impede access to animal healthcare; train veterinarians who will support and lead programs that expand access to care for underserved populations; research best practices and inform policy, promoting a One Health approach to provision of health services for vulnerable animals and those who care for them.

To give to Remy's Fund visit pettrust.ca/donate.



An Investment in the Future of Veterinary Medicine

OVC HEALTH SCIENCES CENTRE OPENS NEW SURGERY AND ANESTHESIA FACILITIES, MADE POSSIBLE BY OVC PET TRUST'S FRIENDS TOGETHER FOR LONGER CAMPAIGN

HOW WE IMPROVE LIFE: LONGER, HEALTHIER LIVES FOR PETS

The halls of the Ontario Veterinary College's (OVC) Companion Animal Hospital look a bit different these days. With the recent completion of a long-awaited capital improvement project within the hospital's surgery and anesthesia facilities, members of the clinical team move seamlessly through their tasks. The team delivers the world-class care and advanced treatment options OVC is known for — now in a brighter, more spacious environment that has been thoughtfully designed to prioritize patient comfort and recovery. Made possible with the support of OVC Pet Trust's Friends Together for Longer campaign, which launched in 2015 and surpassed its \$9-million goal, these new facilities will allow OVC to remain at the forefront of veterinary care, education, training, research and innovation. Most importantly, they will allow patients to experience less pain, recover more quickly and return home faster to their families where they belong.

The new facilities, which opened in May 2021, are starting to feel lived-in. Teams bustle about in their respective areas with the constant, low thrum of medical equipment and monitors serving as a reassuring soundtrack to their daily tasks. The work is demanding and the days are long; but there's a feeling of freshness; a newness that's invigorating. The updated space is physically impressive and remarkable in scale, but one still sees, hears and feels a familiar, soothing energy as the hospital's dedicated team delivers exceptional care to each and every patient that comes through its doors. A comforting embrace; a calm reassurance; a compassionate word of encouragement — these are the hallmarks of OVC's

model of care as its team treats the most complex of cases and sickest of patients. "As one can imagine, the challenges of executing intricate construction projects within an operational and fully functioning tertiary care hospital are complex," says Dr. Stephanie Nykamp, Associate Dean, Clinical Program and renovation project manager. "The new facilities provide a more comfortable and functional setting for staff, as well as an efficient and modern environment with the latest tools and technology for our veterinary teams to practice, train and care for companion animals at OVC."

A LASTING GLOBAL IMPACT

OVC Dean Dr. Jeff Wichtel says investing in infrastructure upgrades are critical to advance the organization's strategic priorities and are vital to maintaining its status as an accredited veterinary college now and into the future. This modernization will ensure OVC remains at the forefront of veterinary education and practice in the delivery of its Doctor of Veterinary Medicine (DVM) program and specialized graduate student training programs, and through advances in scientific discovery and care. In 2021, OVC ranked first in Canada and fifth in the world for veterinary science in a global ranking of veterinary schools.

"OVC has long been a leader in veterinary discovery that pushes the boundaries of innovation in pet care to improve the prevention, diagnosis and treatment of diseases in companion animals," says Wichtel. "These new facilities will have a lasting impact on the training and development of the future generation of veterinary professionals who will go on to treat thousands of pets in communities across Canada and around the world," he adds.



FENWAY

Fenway, a 13-year-old Golden Retriever, experienced an episode of collapse in early May this year. Tests revealed pericardial effusion, the buildup of extra fluid in the space around the heart. Another scan revealed masses on Fenway's spleen, a nodule on the adrenal gland and a mass on the liver. After being referred to the OVC Oncology Service for evaluation and to discuss options for his care, he was referred to the Surgery team for further staging and surgical intervention. Fenway was admitted to the hospital in June and underwent general anesthesia for more diagnostic imaging tests. After diagnosis, Fenway returned to OVC for a laparoscopic-assisted splenectomy, the surgical removal of the spleen, and liver biopsies in the new Minimally Invasive Procedures Suite. The OVC team performed a video-assisted, minimally invasive surgery to evaluate the mass on Fenway's heart along with a pericardectomy, which involved the surgical removal of the sac around the heart. Fenway did well in surgery and recovered smoothly from anesthesia. Soon, he will go back home with his family in Waterloo. Biopsies taken during surgery confirm Fenway's diagnosis: hemangiosarcoma, a type of canine cancer that targets blood vessels. Fenway's owners, Dean Cox and Kimberly Dubblestein, says he's grateful for the hope he's experienced through OVC: "Fenway is battling a devastatingly serious disease, but I know he's receiving the best care and maintaining the greatest quality of life through the expertise of his care team at the OVC."

Photo credit: Scott McQuarrie, scottmcquarrie.com.

AN INVESTMENT IN THE MEDICINE OF TOMORROW

The new medical spaces have been a long time coming.

Where the old surgery facilities had just three surgical suites, the new James Slight Advanced Surgical Complex now holds eight. The complex is also home to the Lindy Barrow Minimally Invasive Procedures (MIP) Suite, a first of its kind at a veterinary teaching school in Canada.

Board-certified veterinary surgeon Dr. Brigitte Brisson prepares to scrub into a spinal surgery as she reviews the procedure with one of her residents. As Brisson and her

colleagues take their places in one of the new operating rooms (OR) to treat today's patient, they turn their laser-like focus to the animal on the table. Not only is Brisson delivering lifesaving, advanced care – she's also helping to lay the foundation for the comprehensive care OVC's graduating students from the DVM program and specialists-in-training will go on to provide to the patients of tomorrow. The OR has a dual purpose within a teaching hospital: saving lives and providing immersive training environments for future veterinarians and specialists.

Veterinarians-in-training, patients and pet owners and lovers alike owe a debt of gratitude to the more than 1,600 donors, grateful

clients, dedicated referring veterinary hospitals and alumni who helped make the new facilities come to life through OVC Pet Trust's \$9-million campaign. Brisson reflects that during her time at OVC she has personally been a part of, or witnessed her colleagues improve the standards of care they implement to help their patients and teach their students. "The new clinical spaces are an investment in the future of veterinary medicine that will ultimately help pets – whether they are physically treated at OVC or by one of our graduates who has been educated in this new facility – live longer, healthier lives," she says.

MODERNIZATION FOR EFFICIENCY AND INNOVATION

Comfort reigns supreme in the Kim and Stu Lang Anesthesia and Pain Management Unit and the John and Jean Waller Anesthesia Recovery Room.

Much like a central subway station during rush hour, the Anesthesia and Pain Management Service is a main hub at the OVC Health Sciences Centre. Patients from many clinical services pass through this unit, accompanied by a member of the anesthesia team. They are prepared, induced and wake up from anesthesia and sedation in these spaces. The care team

constantly monitors physiological parameters—including breathing, heart rate, blood pressure and body temperature—before, during and after the patient's procedure. The standard of care is not that different between animals at OVC and humans. Human health-grade monitors and equipment line the new spaces; the team performs epidurals, places catheters and measures advanced parameters in patients.

"We have a lot of patients that are very sick. In critical and complex cases, that can be very challenging," says veterinary anesthesiologist Dr. Melissa Sinclair as she rests a caring hand on Fenway, a 13-year-old Golden Retriever, as her team prepares the dog for surgery

in the anesthesia prep room. Sinclair reviews Fenway's anesthetic protocols with her team. She goes on to explain that animals, like people, undergo anesthesia for surgery. The team works to minimize pain, discomfort and stress for each individual patient. It is also used for diagnostic imaging procedures to keep the patient still, pain-free and relaxed in order to properly assess their medical condition.

Sinclair says she couldn't accomplish the research she's pursued throughout her career without the support of OVC Pet Trust; she's constantly looking for ways to enhance patient safety and minimize the undesirable effects of drugs in her sick patients (anesthetic medications can have side effects

on the heart and the lungs). Sinclair views the new facilities as a true transformation in improving patient comfort and recovery. As medicine continuously evolves and the service is busier than ever, the new spaces allow Sinclair and her team to meet the needs of their patients without being held back by older hospital infrastructure. The new anesthesiology spaces are larger and brighter, with a quiet and dedicated area for patients to recover and wake up from anesthesia, separate from the noisier induction area – a distinct improvement for patient comfort and recovery in dogs, cats and other companion animals.

Fenway is wheeled on a gurney into the new surgical complex by a Registered Veterinary Technician (RVT), entering the new MIP suite as small animal surgeon Dr. Ameeet Singh briefs his team on the surgical plan and the outcomes he hopes to achieve.

Surgical oncologist Dr. Michelle Oblak reflects on her last surgery in the old facilities as bittersweet and remembers the OR where she grew from an undergraduate student to a veterinarian, to a senior resident, to faculty; but she has immense gratitude for the donors who made the new facilities a reality. She adds that the old facilities, built in the 1950s, had become crowded and dated with the increased surgical caseload OVC has experienced over the past five to 10 years. While she and her colleagues never let an older environment compromise the level of care they were able to provide or hold them back from innovating and pushing the boundaries, she enjoys working in a more modern working environment. “OVC Pet Trust is the lifeline for the work we do here at OVC,” Oblak says. “Support from OVC Pet Trust positions us to be a centre of veterinary excellence in the world; I’m proud of that.”

OPTIMIZATION OF CLINICAL SPACES

The specialty of internal medicine often involves the use of non-surgical techniques to diagnose and treat acute and chronic disorders or illnesses that may involve multiple organ systems. One of the specialized and complex diagnostic techniques the OVC Medicine Service commonly performs is endoscopy, a minimally invasive procedure used to explore and visualize the inside of the body. Endoscopy was historically performed at OVC in a small room within the old anesthesia unit. Upgrades have created the new Stone Endoscopy Unit. This new unit was named in honour of former OVC Dean and surgeon Dr. Elizabeth Stone, and it includes two massive rooms dedicated to endoscopic procedures and equipment.

Endoscopy allows internists to identify issues, and sometimes that involves consulting with other services on the nature of a specific illness or condition in their patient. Internal medicine team members are problem solvers and detectives, conducting detailed investigations to diagnose and help their patients. The complexity of arriving at a treatment plan involves differential diagnoses, a nuanced task aimed at distinguishing one particular disease or condition from others that present similar clinical signs that is an important part of clinical reasoning and decision-making in the health care profession.

Scopings performed in the new facilities help dogs, cats and avian and exotic patients who may suffer from conditions such as gastrointestinal (GI) diseases, pancreas and liver diseases, kidney and urinary tract diseases, foreign body ingestion and more.

TAKE A LOOK BEHIND THE SCENES

Hundreds of types of routine and advanced procedures occur in OVC’s new facilities. Patients are referred by their family veterinarian to the Surgery and Internal Medicine Services. Surgeries from a number of other specialty services are performed here by ophthalmology, neurology, cardiology and avian and exotics specialists.

The space, like a human hospital, is a multi-faceted facility where integrated care is delivered on a daily basis. It is also home to a team of interprofessional veterinary health care workers who provide patient care, including clinicians and board certified specialists, technicians, nurses and support staff, residents, interns, trainees and students.

IT’S ALL ABOUT THE HUMAN-ANIMAL BOND

OVC Pet Trust Director Kim Robinson is grateful for the generosity and support of the many individuals who helped turn an early vision into a reality, and for the difference the new spaces will make in the lives of thousands of pets and their people. A dog owner and animal advocate, Robinson is proud to advance pet health and well-being through OVC Pet Trust’s core mission of helping to improve life for pets and supporting the bond between people and animals.

“The improvements to the OVC Companion Animal Hospital ensure pets can receive life-saving procedures with fewer complications and faster recovery times, allowing people and their pets to be together for longer.” ❖

Photo credit: Scott McQuarrie, scottmcquarrie.com.



MIRA

Mira, a six-year-old Mastiff mixed breed dog, is a neurology patient who was referred to the OVC Emergency Service in late June after experiencing seizures. A series of tests were performed, including an MRI and a cerebrospinal fluid (CSF) analysis, and Mira was diagnosed with a type of brain tumour cancer called a glioma, the second most common brain tumour in dogs. She is visiting OVC for a CT scan for radiation therapy planning. These types of tumours do not respond to chemotherapy; radiation is the best therapeutic option, which her owner, Allison Do Rego, has decided to pursue to treat Mira’s cancer. Many patients like Mira are anesthetized for diagnostic imaging and tests, to ensure comfort and to keep them still and relaxed during the procedure. “Mira is my whole world,” Allison says. “I know she is in the best hands at OVC.”

MEET SOME OF
THE FIRST PATIENTS
TREATED IN THE
NEW OVC FACILITIES



CROUTON

Crouton, a one-year-old domestic medium hair cat, presented to the OVC Internal Medicine and Surgery Service for a spay and a cystoscopy, a procedure to check the health of the urethra and bladder. Crouton was anesthetized for her procedures. She was referred to OVC after her foster owner noticed the cat suffered from urinary incontinence and recurrent urinary tract infections. Crouton's human Stephanie Pisani says she expects Crouton will have follow-up appointments to address ongoing concerns but is hopeful OVC will be able to help. After her procedure, Crouton will go back to her foster home with Stephanie and her bonded cat sister, Pretzel.

GETTING TO KNOW... DR. MELISSA MACIVER

VETERINARY SURGEON AND ASSISTANT PROFESSOR
DEPARTMENT OF CLINICAL STUDIES
ONTARIO VETERINARY COLLEGE
UNIVERSITY OF GUELPH

Why did you pursue a career in veterinary medicine?

From an early age, I felt a strong bond to animals of all kinds. Throughout my life I have experienced the joys of pet ownership. I grew up with two long-haired Dachshunds as well as a cat. They were happy, loving animals, always looking for their next adventure. From a medical aspect, my mother was a cardiac unit nurse at a hospital in Toronto and I always admired her work ethic and enjoyed hearing about her day. I knew from an early age that I wanted to find a way to combine my interest in medicine and my love for animals. To this end, I attended the University of Guelph for my undergraduate degree in Biomedical Sciences and the Ontario Veterinary College for my veterinary degree. As I progressed through veterinary school, my passion for animals grew. I developed relationships not only with the patients I was seeing daily, but also the families of which they were a part. Through the treatment of these pets, I felt I was making a difference not only to the pet's well-being, but also the family as a whole. To this day, I would have to say my favourite aspect of my job is the feeling I get when I receive thank you letters from the families of the pets I have helped.

Why did you pursue advanced training and specialize as a veterinary surgeon?

Throughout my undergraduate degree and my first year of veterinary school, I figure skated competitively. As an athlete, there are many injuries that can require surgical intervention and it is of the utmost importance to be able to return to the sport quickly. It was through this lens that I became fascinated with minimally invasive surgery. While in my fourth year of veterinary school, I watched dogs who had torn their cranial cruciate ligament (the equivalent of an ACL in humans) limp into the clinic on three legs. When the owners came to pick them up two days later, the dogs were already beginning to put weight on their operated leg. As I continued to specialize in surgery during my four-year residency program, I became captivated by the idea of using a small camera through approximately five-millimetre incisions to evaluate the inside of a joint, as opposed to making a much larger incision as previously performed. This advanced surgical technique allows for a much faster and more comfortable recovery.



What is your current research focussed on?

During my residency at Texas A&M University, I completed a Master of Science in stem cell therapy and its application to repair damaged cartilage within joints. New to stem cell therapy, I found the topic very stimulating and began researching its use in both human and veterinary medicine. I am currently working with OVC's Dr. Thomas Koch evaluating the use of stem cell therapy for chronic elbow osteoarthritis in dogs. Further to this research, I am interested in evaluating inflammation of the patellar tendon post cruciate (ACL) repair in dogs. Finally, I enjoy evaluating teaching techniques - including the use of models - and their effect on student education.

What do the new surgery facilities at OVC mean to you and what benefits do they provide?

I have the privilege of working in the new surgery facilities at the Ontario Veterinary College. This new surgical space allows multiple services to perform multiple surgeries at the same time and move from one surgery to the next more seamlessly. From an education standpoint, the larger rooms and monitors provide an exceptional teaching environment for the residents, interns and students.

Do you own any animals yourself?

I currently own a five-year-old male one-eyed Labrador Retriever named Bauer. I rescued him in Texas when he was surrendered after finding a tumour in his eye at only four weeks of age. We have since removed his eye and he is doing fantastic with no return of his tumour. He currently spends his time at my parents' house with their yellow Labrador Retriever Hudson and their new puppy Kobi while I am on the clinic floor. I also have an approximately 14-year-old female domestic shorthaired cat named Moxy. *

Photo credit: Scott McQuarrie, scottmcquarrie.com (left). Photo supplied by Dr. Maciver with her dog, Bauer (right).



BRIDGING THE SCIENCE AND MEDICINE OF CANCER RESEARCH TO BENEFIT ALL SPECIES

CANCER RESEARCHER HOPES HIS WORK WILL HELP PET OWNERS MAKE DIFFICULT DECISIONS

Pathology, the study of disease, is commonly referred to as the bridge between science and medicine. Pathologists play a critical role in research: they help to advance medicine by developing new treatments or ways to fight infections, viruses and diseases, such as cancer.

The world of cancer research is intricate. One veterinary specialist is working to unlock the key to the diagnosis and prediction of outcomes in cancers affecting pets.

Cancer researcher Dr. Geoffrey Wood is a specialist in veterinary pathology and co-director of the Institute for Comparative Cancer Investigation at the Ontario Veterinary College (OVC). In his current work, he is comparing the behaviour of cancer cells across various species to better understand how the disease can be effectively managed. His hope is that this research will benefit not only companion animals, but potentially all species, including humans. In addition to studying dogs and cats, Wood's work also includes long-lived animals like horses, whales and elephants.

"Thousands of mutations exist when it comes to cancer," Wood says. "When we look at the same disease in two different species, we can start to uncover commonalities to help direct efforts towards a better target for therapy – this is our ultimate goal."

DOGS MAY HOLD THE KEY FOR UNLOCKING ANSWERS IN MANY SPECIES

Wood is investigating ways to use mutations in cancerous tumours to help predict patient outcomes. He says the answer may involve micro RNA, commonly abbreviated as miRNA, which are very small functional and versatile molecules that are made by cells. Hundreds of miRNA exist in the body, and their primary purpose is gene regulation. Wood explains that changes in one miRNA can have a big effect on cells and have striking similarities across species.

Wood's lab isn't just dedicated to studying one type of cancer. Rather, the work tackles multiple disease types across various species, and Wood is heavily investing time, funds and efforts into research he hopes will help pet owners make difficult decisions. He hopes to be able to unlock some long-asked questions about how and why disease occurs and how we can predict outcomes in patients.

Wood is working toward the ability to diagnose and predict the outcome of canine cancer patients with a simple blood test. Whether it is bone cancer, blood cancer, hemangiosarcoma (cancer of the blood vessels) or another type of cancer, the same principles may apply when we are looking for answers and potential solutions, Wood says.

In January 2019, Wood and his collaborators published the first study to compare cancer genomes across human, canine and equine tumours in mucosal melanoma. The research team sequenced the genomes of mucosal melanoma tumours from 46 humans, 65 dogs and 28 horses; they discovered a handful of genes that were commonly mutated in all species. The study not only showed the commonalities in mutations across species in the same kind of tumour, but it showed differences too. Wood says his work opens the door to be able to do this on a larger scale; after all, it had never been done with three species before.

In a more recent study, Wood and his colleagues found something they didn't expect in blood samples of dogs who had been diagnosed with an aggressive type of lymphoma: multiple miRNAs that may be of interest for detection and for the forecasting and prediction of lymphoma in dog patients. While the discovery of miRNAs as effective biological markers for human cancer is an active area of research, there are currently limited studies exploring miRNAs in canine cancer.

Wood's work demonstrates the many advantages to the medical and research community of recognizing and using dogs as a model for understanding disease – specifically cancer.

"Spontaneous tumours in dogs are gaining recognition as 'models' of human cancers for the development of therapies that can benefit both species," Wood says. "Our research shows the importance of understanding the genetic similarities and differences of cancers across species so that the most biologically relevant drug targets are prioritized."

Wood highlights that OVC Pet Trust provides unparalleled and valuable resources and tools for his team's research endeavours, particularly having access to the Companion Animal Tumour Sample Bank (CATSB), located within the OVC Health Sciences Centre and supported through The Smiling Blue Skies Cancer Fund.

"Diseases that occur in multiple species are very important to study," Wood advocates. "The pathogenesis, or more simply put, how disease develops, particularly in cancer patients, may hold clues for the greater scientific and medical community at large." 🐾



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

Fluorescent imaging of the liver and biliary tree in dogs undergoing gallbladder removal

Dr. Brigitte Brisson
Improved visualization of the anatomic structures of the biliary tree (the system of vessels that connects the liver, gallbladder and pancreas through a series of ducts) will be useful in all biliary procedures, whether open or laparoscopic, including liver surgeries for tumour resection and biliary trauma cases, which are particularly challenging. The information gained from this clinical study is the first of its kind and will be directly implemented for use in clinical cases, setting the stage for the use of this technology in these and eventually other procedures.

Assessing diagnostic and treatment targets in canine lung tumors

Dr. Michelle Oblak
Current techniques for imaging and treating lung cancers in dogs are limited and invasive. This research will establish a connection between high levels of a specific tissue marker, Folate receptor alpha (FRA), and lung cancer in dogs. Once this connection is confirmed, a technique for liquid biopsy will be developed. Ultimately, this work will form the foundation for further studies in canine lung cancers and other cancer types focusing on minimally invasive diagnostic and treatment methods benefiting both pets and humans.

Evaluating new techniques for imaging pancreatic tumours in dogs using advanced technology to improve accuracy

Dr. Michelle Oblak
Insulinomas are a rare, aggressive type of pancreatic cancer in dogs. If we can better visualize the primary pancreatic mass and any areas where the cancer has spread (lymph nodes and/or other organs), these can be removed or biopsied during surgery which may improve patient survival

and outcome. Using a specialized dye called ICG, we can make the invisible visible through exposure of the dye to near infrared light (NIRF). The hope is that this dye will collect in pancreatic tumour cells, improving surgical visualization. This technique can be used for a number of applications in veterinary medicine, many that are currently under research. Once established, it is expected that the use of ICG will become standard of care during surgical treatment of various cancers.

Investigating a new chemotherapy treatment for canine hemangiosarcoma

Dr. Tony Mutsaers
Canine hemangiosarcoma is an aggressive cancer with limited survival improvement from current chemotherapy treatment. This clinical trial investigates a well-tolerated chemotherapy drug with the dual goals of improving the current standard of care for this disease, as well as providing a framework upon which novel therapeutics will be added to further improve outcomes for affected dogs.

Measuring microRNA expression in dogs with autoimmune brain disease

Dr. Geoffrey Wood
Immune-mediated brain disease in dogs is common and is often fatal. This research seeks to understand how small molecules called microRNA are involved in this disease to help develop better diagnostic techniques and novel therapies.

MicroRNA expression in bone cancer in dogs

Dr. Geoffrey Wood
Research has recently established that blood levels of several small molecules called microRNAs change in dogs with bone cancer. This proposal will measure microRNAs in the tumours themselves and reveal which cell types are making the microRNAs, which is important in developing future therapies that inhibit these small molecules.

CAT HEALTH

Establishment of reference intervals for urine KIM (Kidney Injury Molecule)-1 in healthy cats to improve outcomes in patients with chronic kidney disease

Dr. Alice Defarges
This research aims to drastically improve outcomes for cats and perhaps lead to decreased prevalence of chronic kidney disease (CKD) in the older feline population. Having a validated, easy to use test with reference intervals could change the clinician's ability to diagnose kidney injury and revolutionize the prevention of CKD.

Evaluating the use of 3-D non-invasive bedside bladder ultrasound images in cats

Drs. Xiu Ting Yiew and Shane Bateman
Urinary catheter placement in cats is an invasive procedure requiring heavy sedation or general anesthesia and often causes infection or injury to the urinary tract, as well as urethral tissue swelling and spasm. This can lead to discomfort in urination or recurrence of urinary blockage after catheter removal. An accurate and reliable non-invasive bladder volume estimation method that precludes the need for urinary catheter placement and its associated risks or complications would be valuable for monitoring of urine production in cats. This 3-D bladder volume estimation technique has the potential to be programmed into standard 2-D ultrasound machines, making non-invasive bedside bladder volume determination accessible to many veterinary clinicians and researchers in the future.

Is feline coronavirus an important feline health concern in Ontario?

Dr. Scott Weese
This will be the first investigation of the newly discovered feline coronavirus in Ontario. It will provide a baseline understanding of this virus in cats admitted to shelters and help determine whether this virus may play a role in shelter-acquired diarrhea.

AVIAN & EXOTIC HEALTH

Development of a vaccine against avian bornavirus

Dr. Leonardo Susta
Avian bornavirus (ABV) is an emerging virus that has been recently detected in an increasing number of avian species. Parrot bornavirus (PaBV) is the causative agent of proventricular dilatation disease (PDD), a lethal neurological disease, which has been linked to ABV. This research aims to develop an artificial version of PaBV that can be easily studied in the laboratory to improve understanding of how it causes disease in parrots, and to develop an attenuated version to be used as a vaccine against PDD.

COMPANION ANIMAL HEALTH

Making the most out of bone marrow biopsies

Dr. Dorothee Bienzle
It is often necessary to examine the bone marrow to distinguish diseases of the marrow itself from diseases in other organs that affect the marrow. Getting a biopsy of marrow is technically difficult and it is challenging to process good specimens for microscopic diagnosis. This research aims to produce an optimal, standardized and validated procedure for processing marrow samples, allowing for reliable diagnostic yield from such valuable specimens. ✨



In photos: Dog patient Lacey (left), cat patient Velcro (right). Photo credit: Scott McQuarrie, scottmcquarrie.com.



Saying Goodbye: Sparka's Story

By Sarah Bernardi, Veterinary Social Worker, RSW MSW

"To anyone who has or is currently journeying through the loss of your pet, my message is this: please know that your grief is valid."

I will never forget the day my parents and I went to the local Humane Society to pick out our first family pet. As we walked through the facility, dogs barked excitedly, wagging their tails in anticipation. The one that caught my eye, however, sat nervously at the back of her cage—this is the dog we would end up bringing home.

The dog we chose was a year old mixed-breed and full of energy! Her full name was Sparkly-Diamond (I was five and was going through a big princess phase) who we affectionately called 'Sparka.' It did not take long for Sparka to become an integral part of our immediate and even extended family. Sparka had many memorable traits, some of which included zooming around the living room when she was excited; escaping the house to see her boyfriend next-door – a wiener dog named Mr. Bean; and sheepishly sitting close to, and licking the face of anyone who was upset or crying. She loved to be the centre of attention. Many times my family and I tried to play a board game on the floor, only for Sparka to knock over the pieces in protest as she was not being included.

Sparka was very spoiled, especially by our grandparents. When Sparka stayed with them, she ate boiled chicken and leftovers and took afternoon naps with my grandpa. At one point, I remember telling my mom that she didn't even look like a dog anymore - she just looked like another family member. The stories about Sparka are endless, and we were very fortunate to enjoy 17 years with her.

Even though 17 years is a long life for any dog, it still didn't feel long enough. Just as I well remember all the wonderful memories shared with her, I also remember the day we knew we had to say goodbye.

I remember it well because it was my 21st birthday. We noticed she wasn't acting like herself; we had family over and normally, Sparka would be in the living room going from person to person waiting for a neck rub. Instead, she sat in the basement. She was lethargic and her breathing seemed laboured. That night, my parents slept on the living room floor next to her and in the morning they made

me they decided on humane euthanasia for Sparka. I left work early and we spent the day doing everything she loved, like sitting on my parents' bed and eating a small bowl of whipped cream.

The euthanasia experience was painful, to say the least. My immediate family, including myself, my mom, dad and brother were in the room with her when she died. To this day, I have never seen my family collectively cry so hard.

When we came home, we sat together, cried and looked at pictures. I had plans to go away that weekend, which I quickly cancelled—it didn't feel right to do anything but remember Sparka. This was the first time I had ever lost a pet and I found that grief very difficult to navigate. How could something so consistent and loving in your life just be taken away like that? Why did it feel different than losing a person? It almost felt worse.

Sometimes life has a funny way of taking us full circle. Today, I am very fortunate to be a veterinary social worker at OVC. My work has opened my eyes greatly and has offered a new perspective on pet loss. Part of my role as a clinical counsellor includes providing support to clients at OVC whose pets are sick or who have died. I am incredibly thankful that so many pet owners have been courageous enough to share their pets' stories with me and their intense grief.

To anyone who has or is currently journeying through the loss of your pet, my message is this: please know that your grief is valid. People don't always understand why we mourn so deeply for our furry family members, but that is only because they don't understand the special relationship we have with them. Remember to take your time, take care of yourself and acknowledge your feelings—and reach out to a mental health professional if you need extra support.

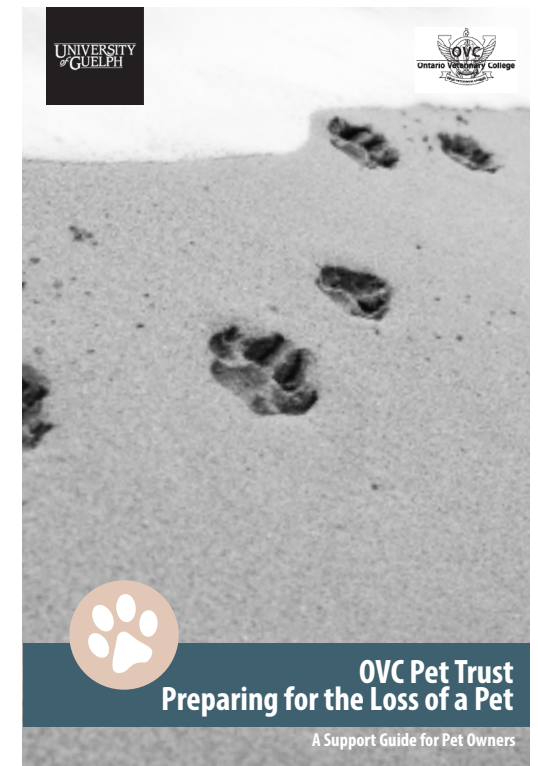
I often reflect on my family's experience losing Sparka. Sparka had such a unique personality, and she spent so many transitional years by my family's side—always there, always endlessly loving. I recognize that the loss of a pet is a different type of grief from the loss of a human. I still have a good cry for Sparka every so often, because I miss her dearly, but I can function with that grief now. I can share memories and laugh without intense sadness.

Now, more than ever, I know that a pet is never "just a pet." They are members of the family who provide us with unconditional love and kindness. I have Sparkly-Diamond to thank for that!*

Photo credit: istock.com/ChristinLoia

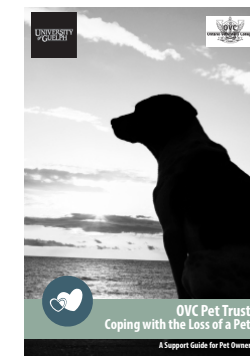
NOW Available

OVC Pet Trust: Pet Loss 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:

www.pettrust.ca/petlossresources.



SIX DEGREES OF SEPARATION

by Suzi Beber

CELEBRATING 20 YEARS . . . "THERE WILL ALWAYS BE SMILING BLUE SKIES"

Smiling Blue Skies has raised more than \$2 million to support OVC Pet Trust's quest to find more and better ways to deal with canine cancer.

If you can dream it, you can do it. If you can visualize it, you can actualize it. This was something I told my students back in the 80s, and it was something I repeated to myself, after Tommy and I lost Blues to cancer over 20 years ago, on March 27, 2001.

He was the sun and moon and stars to us. He was our Smiling Blue Skies. Many of you have read those words or heard me say them, and the questions that rose out of our grief were, "How can we help to change the journey for other heart dogs?" "How can we help the veterinary world find more and better ways to one day change the face of cancer for ALL of us?"

Well, \$1,000 in the spring of 2001 paved the way to \$2 million in 2021, and each step along the way has been all about you, our amazing community of supporters and volunteers. From coast to coast and further afield, we have seen amazing projects powered by children to annual events that have created their own special following. None of the work we have done, or will continue to do, would be possible without you.

Thanks to you, we will continue to fund oncology-related research projects and critical positions. While the world changes daily, one thing never changes for us: Smiling Blue Skies continues to offer 24/7 support to anyone whose life has been touched by cancer, even when that means finding new and creative ways to reach out.

And, when I revisit all the moments and touch stones through the years, in cards and letters and photos and videos, I think of each of you and of all our dogs, our miracles with paws, that teach us with every breath, to live in the moment, to look up at the skies, and even in the darkness, show us that light will always shine through.

Tonight, go outside, and turn towards the stars. If you close your eyes, and listen really hard, you will hear the wonderful music of our Blues Man; the music of life, and of sweet dreams. You can't have a rainbow if you don't have the rain. In my mind's eye, and in my heart, there will always be Smiling Blue Skies, and there will always be you to thank for this journey.

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

www.smilingblueskies.com

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 Goodness and Mercy

Dear OVC Pet Trust,

My cats Goodness and Mercy were ornery. Well, they were feral, really. Life was hard for them because they were cats' cats, forced to live with humans for security, and they never really liked it. Their mother lived in an apartment with other cats owned by someone who was almost never home. Goodness and Mercy loved my previous cat, who died when they were about eight years old. But although they were fond of me, they haunted the house silently, like shadows. They never purred, but I loved them dearly. Mercy died two years ago and Goodness died this spring, at 18 years old, after every organ had just worn out. She needed to go. The Mid-town Mobile Veterinary Hospice Service was so good to her that her death was better than her life. I cried and cried, not because she was dead but because her life was so miserable. The thought of all those long gray years of cat-grief – the weight of her sadness, the everlasting

heaviness of it – it seemed she was out of place her whole life. It's awful to live with a sorrowing cat.

You know how every animal has something to tell you? A sort of message written in warm fur, something you wouldn't have known if you didn't live with them? I learned more than I ever wanted to know about sadness from Goodness and Mercy.

But I loved them, and the second thing they taught me is that a house without a pet isn't worth putting a roof over. Cats are like music – even when you don't see them, they fill the whole house. Some part of you is always thinking of them, listening for them, planning for them. You fit together like a lock and key – it's a completeness many pet owners feel, I think.

My friend told me about old cats, sick cats, ugly cats that no one wants because they could be too much trouble and too expensive, and I made up my

mind immediately to adopt two of them. The love Goodness birthed in me was going to waste; I didn't want it to turn sour inside me. Loving our pets is one of the ways that we keep the lights on for our planet. This love...it pays our bills and it lights our lives. I said 'I love you' so often to Goodness that she probably thought that was her name. I don't want to let the embers of my heart grow cold. I want to continue to be part of keeping the lights on. I do believe in love, and I believe that the world is infiltrated with that necessary substance in any number of ways. And our pets are one of them.

We live on the love generated by these encounters, and this love is what keeps the lights on for the whole wide world. For our civilization. Our humanity.

Geraldine Watson
Toronto, Ont.

In photo Suzi Beber with her dog, Blues.

#PETTRUSTPALS

#PetTrustPals celebrates amazing supporters of OVC Pet Trust from across Canada! To share your event, tag your photos with #PetTrustPals on Facebook (facebook.com/ovcpet) and Twitter (@ovcpettrust) or email: ovcpet@uoguelph.ca.



1. 11TH ANNUAL OTS DOG JOG

In March 2021 the OTS Dog Jog went virtual and raised more than \$12,700 to support OVC Pet Trust. In photos: OVC 2022 student veterinarian Leigh Harrison and her dog Kikai; OVC 1980 alumna and OVC Pet Trust board chair Dr. Doreen Houston and her dog Obi; OVC 2013 alumna and OVC Pet Trust board member Dr. Rebecca Sterns and her dog Sadie.

2. THE 18TH ANNUAL SMILING BLUE SKIES VIRTUAL CALGARY WALK FOR CANINE CANCER

In May 2021 more than \$38,000 was raised to support canine cancer care, education and discovery at the Ontario Veterinary College. In photo: Ninja, Morley and Ollie.

3. DOGUST

In August 2021 Ren's Pets and their customers raised more than \$16,000 to advance companion animal health through OVC Pet Trust. In photo: @thatcorgiwithatail.

OVC PET TRUST

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.

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