

# THE emergency & CRITICAL CONCE

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#### From the desk of ou Mana lina

I am so proud to officially announce OVC Pet Trust has reached its goal of raising \$9-million to create new advanced surgical and anesthesia facilities at the Ontario Veterinary College (OVC). Construction is underway, and we look forward to opening our state-of-the-art facilities in 2019. Thanks to our generous donors and supporters the new facilities will have a tremendous impact on thousands of animals referred to OVC each year for advanced care. This facility will help keep OVC at the forefront of veterinary medicine in raising the standard of care, offering the most advanced surgical and anesthesia techniques, diagnoses and treatment in Canada, while training the next generation of veterinary leaders. We look forward to sharing more about the completion of these hospital renovations in 2019. As we celebrate this success we know our work to help the pets we love is never done. We hope you will continue to read Best Friends to learn more about our next project in the months to come.

In this issue of Best Friends, we explore emergency medicine and critical care (pages 8 and 13). We also highlight the OVC Pet Trust-funded work of our specialty clinical services including: the complexities of canine epilepsy in neurology (page 16) and searching for answers for a common heart disease in cats in cardiology (page 10).

When you support OVC Pet Trust, you are helping impact the health and wellbeing of pets on a global level. OVC

researchers and innovators are major players in the world of veterinary medicine and animal health. Be sure to read about Dr. Theresa Bernardo's work in the area of big data to advance insights into pet health (page 20), Prof. Tami Martino's research to apply what we know about sleep, healing and the circadian rhythms in human medicine to improve recovery for pets in ICUs (page 4) and Dr. Michelle Oblak's successful 3-D implant surgery, a veterinary first in North America (page 18).

We appreciate you being part of OVC Pet Trust's vision to advance learning and discovery. However you choose to give back, you are helping all the pets we love, live longer, healthier lives and we can't thank vou enouah.

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

P.S. Thank you to everyone who took part in our Best Friends Reader Survey, and congratulations to Nancy B. from Whitehorse, YK who was the winner of the \$250 Ren's Pets gift card.

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

OVC Pet Trust, founded in 1986 at the Ontario Veterinary College (OVC), University of Guelph, is Canada's first charitable fund dedicated to the health and well-being of companion animals. OVC is a leader in veterinary healthcare, learning and discovery for the health of all species, including our own. In 2018, Quacquarelli Symonds (QS) ranked OVC 1st in Canada, 4th 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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### **FALL WINTER 2018/19**



HE PET MAGAZINE OF THE ONTARIO VETERINARY COLLEGE

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#### **BACK COVER**

**#PETTRUSTPALS UPCOMING EVENTS** 

Cover image: ICU patient Charlie. Photo credit: Scott McQuarrie, Ward 1 Studios.

### What Pet Owners Need to Know About... Echinococcus multilocularis A NEW emerging DEADLY parasite poses a threat to canine and human health in Ontario

#### WHAT IS Echinococcus multilocularis?

Echinococcus multilocularis (EM) is a parasitic tapeworm that can cause serious disease in both dogs and humans. Before 2012, EM had never been described in Ontario. However, since that year infections with this parasite have been diagnosed in six dogs in southern Ontario.

In 2018, because of public health concerns, Ontario made the parasite reportable in both people and dogs. Reportable diseases allow for the collection of statistics which can help **DEFINITIVE HOST** researchers to identify trends and track outbreaks.

Dogs can develop two different kinds of EM infections – intestinal and liver. "Intestinal infections in dogs are contracted only when a dog eats a rodent such as a mouse," says OVC's Dr. Andrew Peregrine, an associate professor in the department of pathobiology at the University of Guelph and a board-certified specialist in veterinary parasitology, the study of parasites and their hosts. "The dog would not typically become ill, however it would shed eggs in its feces, which can then infect people, which is the major public health concern," he says.

Since dogs with intestinal infections appear healthy, there is no way to know if they may be infected and shedding these eggs. If humans or dogs ingest these eggs they can develop a liver infection caused by EM called alveolar echinococcosis, a serious illness in both dogs and people. This type of infection is most likely contracted by dogs when they eat the feces of foxes or coyotes. "The infection causes a tumour-like growth in the liver which eventually is detrimental to a dog's health. People are at risk of developing this type of EM

too and, alarmingly, signs and symptoms can take five to 15 years to develop." By the time infections are diagnosed there is often significant liver damage. As a result, infections can sometimes be fatal.

#### THE PUBLIC HEALTH RISK OF EM: A WARNING TO ALL CANADIANS.

"EM is a very serious public health concern. Our team is tackling an urgent need to determine where the parasite is emerging in the province," Peregrine says.

In 2012, a two-year-old Boxer in the Niagara region was the first dog in Ontario to be diagnosed with EM, which ended up being identified by chance. Since 2012, five additional dogs have been diagnosed with the tapeworm in Ontario.

Illustration created by: Jonathan Kotwa.

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Peregrine and PhD candidate Jonathon Kotwa are studying

the presence of this zoonotic tapeworm (i.e. a parasite that can be transferred from animals to humans) in Ontario. To date, the research team has analyzed the tapeworm in wild fox and covote populations spanning from Windsor to the Quebec border. They have found that approximately 25 per cent of the wild animals tested were positive for EM, with the highest levels of infection detected along the northern shore of Lake Erie and the western end of Lake Ontario.

As EM is now reportable in dogs, Peregrine indicates that "Any person that has been in contact with an infected animal should now be promptly identified and the disease caught early Foxes, coyotes, domestic dogs and cats

"Since the first dog case in Ontario was only identified in 2012, and the clinical incubation period in people is five to 15 years, we may start to hear about human cases soon," Kotwa says. "Through our research, we hope to describe where the parasite can be found in the province, how common it is and use the data we have gathered to develop prevention and control strategies."

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**INTERMEDIATE HOST** 

**BOTH YOL** ACCIDENTAL HOST **AND YOUR** DOG FROM Echinococcus multilocularis.

HOW TO

PROTECT

- If you own a dog who eats rodents, pet owners can speak to their veterinarian about putting their dog on a preventive monthly deworming treatment, which should minimize the risk of infection in humans. Ensuring your dog does not eat fox or coyote feces can protect your dog from developing the liver EM infection.
- "Increasing awareness among pet owners is important because knowledge is the first step in prevention," Peregrine savs.
- The most important tip to protect yourself from EM is to wash your hands, Peregrine advises. "It is very important for dog owners (and outdoor cat owners, though felines very rarely carry the parasite) to wash their hands regularly and especially before they eat or handle food. Maintaining sanitary habits when interacting with dogs is the best way to deal with this disease."
- Pet owners and veterinarians can visit emultiontario.com for more information about EM in Ontaria.

#### THE IMPORTANCE OF

# REST & RECOVERY

#### How can I heal if you won't let me sleep?

In photo: Martino's data logger measures light and sound in OVC's Intensive Care Unit (ICU). ICU patient, Cali, in background.

What if it was possible to cure the damage done by a heart attack by simply adjusting light and noise in the intensive care units (ICU) in hospitals? What if some of the conditions regularly experienced by patients in ICUs could actually do more harm than good? What if by

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adjusting the physical surroundings in the space where patients recover helped them heal faster, go home sooner and live a longer, healthier life? What if we applied successes learned in human medicine ICUs to improve the health and welfare of our animal companions?

The key to unlocking the answers to many of these questions lies in circadian rhythms, says Tami Martino, director of the University of Guelph's Centre for Cardiovascular Investigations and associate professor within the Department of Biomedical Sciences at the Ontario Veterinary College (OVC).

Circadian rhythms are found in all living organisms, including humans, animals and plants. Often referred to as the body's biological clock, these rhythms follow the 24-hour daily cycle of our earth and help us adapt to light and dark, signal when to be active and when to rest and indicate when to sleep and be awake. Circadian rhythms are important for many critical body functions including the way that we heal from disease or injury.

When rhythms are disrupted, the body fails to receive the correct signals to function at an optimal level. Since up to 25 per cent of the population engages in shift work at some point in their working career, travellers frequently deal with jetlag and people commonly suffer from sleep disorders - there are many situations where circadian rhythms can be disrupted in our everyday lives.

Martino's research reveals that even shortterm disruption of circadian rhythms, such as that experienced in ICUs and hospital wards, may worsen a patient's long-term outcome.

"In the first few days after a person suffers a heart attack, immune cells flood into the heart to clear away the debris and damage. A scar forms and the heart has to adapt to the damaged area. Over time this can lead to heart failure for the patient," Martino says. "Our studies showed that when circadian rhythms and sleep are disrupted during this critical early healing period, the immune cell responses are altered leading to larger scars and worse outcomes. If we can control simple things like light and noise that collude to disturb our body's rhythms and sleep during those crucial couple of days after a heart attack, we can minimize scarring and the patient has the potential to live a longer, healthier life."

Can it really be just that simple? Martino is particularly interested in studying heart disease, but she says that the principle is relevant any time there's a healing inflammatory reaction in cases like a trauma, such as being hit by a car, burns or a traumatic brain injury. Martino stresses that we may have the potential to improve health outcomes in these areas by recognizing the impact circadian rhythms have on healing.

"In human medicine, disruptions to circadian rhythms In ICUs occur with light, noise and frequent staff-patient interactions, especially at night, making

Photo credit: Jane Dawkins.

healing."

For this reason, Martino and her team have started to investigate if they can adapt these research findings relevant in human medicine to help our animal companions as well. Her team is currently gathering data that will help understand the impact of light and sound at night within veterinary spaces. The team is using data loggers, devices that measure light and sound over a 24-hour period (day

Martino is also investigating another rapidly growing field of human circadian medicine, called chronotherapy, or the timing of therapy. "In human medicine, we are discovering that chronotherapy can benefit some cardiovascular treatments — by timing medications and therapies to the body's physiologic and molecular rhythms, we can improve efficacy, sometimes reduce toxicity and improve outcomes," Martino says. "This new field of study also has the potential for translational benefits to improve the health and well-being of our animal companions as well."

Martino's ICU findings indicate that simple modifications can be made to help maintain circadian rhythms and sleep, such as sound-proofing and light-proofing (especially eliminating blue wavelength light at night) in certain areas. Other changes, such as relocating computer screens away from patient areas and adjusting the shifts or timing of staff checks, is already helping human patients. "We have a tremendous, timely opportunity to apply our findings at OVC to benefit animal patients and lead the way into unchartered territory within the world of veterinary medicine," Martino says. "Our research as leaders in circadian medicine has the potential to impact both human and veterinary hospital design and, more importantly, improve the health and welfare of all species."\*

it more difficult for our body to heal, "Martino says, adding, "maintaining circadian rhythms and sleep is a promising non-pharmaceutical approach to improve

Tami Martino investigates how disrupting body clocks and sleep drives diseases. Her lab also examines how circadian biology can be therapeutically manipulated using genetic, environmental or pharmacological approaches to prevent, slow or reverse damage.

Our research as leaders in circadian medicine has the potential to impact both human and veterinary hospital design and, more importantly, improve the health and welfare of all species.

and night) within a variety of animal care settings including OVC's ICU and wards, animal shelters and primary care veterinary hospitals in Ontario. This will help set a base line for current healing environments for pets in critical conditions.

#### the power of sleep

All life on earth is subjected to a 24-hour day and night (circadian or diurnal) cycle, which is controlled by tiny molecular clocks inside our cells. These clocks help us know when to be active or rest, awake or asleep.

*Martino's research shows* that maintaining circadian rhythms and sleep in ICUs is a promising non-pharmaceutical way to improve outcomes for patients. While Martino's focus is on new treatments for heart disease, her findings may also be applied to a broad range of clinical priorities including mental health, cancer biology, women's health, microbiome and gut health, sleep, shiftwork, exercise and diet.



In photo: Jordan Sackman, Kat Osen and Buddha.

> Sometimes a dog comes into your life and changes everything. From the moment Kat Osen and Jordan Sackman welcomed Buddha into their lives in 2009, it was never the same.

> "The stars aligned, and Buddha became the light of our lives," Kat smiles. "He had a stoic, calm nature about him; he absolutely loved playing in the snow, and he was a faithful companion. He stayed by my side when I was in labour with our first-born child, helped us welcome his littermate and sister Flare into our home at the age of two and he was a certified therapy dog, volunteering at long-term care facilities, libraries and kindergarten classes," she reminisces.

Kat and Jordan remember seeing their five-year-old black Newfoundland for the first time after his amputation in December 2014, shortly after he was diagnosed with osteosarcoma. "He came bounding down the hallway at the Ontario Veterinary College (OVC), on three legs, with his favourite Winnie the Pooh stuffed animal he'd had since he was a puppy in his mouth, and excitedly greeted us."

Osteosarcoma is an aggressive cancer that causes destruction of the bone when cancer cells form a tumour — sometimes the bone can even break because it's so weak and causes very painful clinical signs and symptoms in both dogs and humans who are diagnosed with the disease. When a dog is diagnosed, 90 per cent of patients have already had tumour cells spread to other parts of the body, which can be difficult to detect. The standard of care for dog patients with bone cancer is amputation, followed by chemotherapy; it commonly spreads to the lungs, and unfortunately there is no therapy once this occurs.

"Medically, Buddha's case was extremely unusual. He survived much longer than the average patient and he ultimately developed another bone tumour that could either represent spread of his original tumour or another primary site of osteosarcoma. No other evidence of spread of the bone cancer was ever detected," says Dr. Danielle Richardson, board-certified veterinary specialist in internal medicine and medical oncology at OVC'S Mona Campbell Centre for Animal Cancer. "If Buddha hadn't been treated, he would have died within a couple of months of his diagnosis. Fortunately, we were able to extend his life far beyond the norm and he was able to enjoy a better quantity and quality of life with his family who love him so much."

Buddha's family believes he came into their lives for a reason. "We did anything and everything we could for him. His spirit throughout battling cancer was incredible," Jordan says.

Kat and Jordan donated Buddha's blood and tissue samples to the OVC Companion Animal Tumour Sample Bank, which now houses more than 23,000 samples that will be used for future research aimed to unlock answers to a wide variety of cancers that affect both humans and pets. Buddha's owners also gave the harness their dog used following his surgery to OVC's animal cancer centre with a heartfelt letter to pass along to the next client and pet who may benefit from it. They hope Buddha's contributions will help the scientific community learn from his case and that the harness will offer a little bit of relief to the next dog in need of wearing it.

"Buddha was our dream come true. He had this beautiful presence about him. We still feel so alone without him," Kat says. "He will forever hold a special place in our hearts." 😵

Editor's Note: Buddha died on February 23, 2018 at the age of eight, three years to the day after finishing his chemotherapy treatments at OVC and surviving three and a half years after being *diagnosed with bone cancer.* 

Hi, I'm Buddha the Newfoundland. If you're reading this, then the wonderful folks at OVC believe that you are the right dog with just the right family to become a part of something very, very special. I'll explain.



How a special connection in OVC's animal cancer centre waiting room inspired one serendipitous legacy

The waiting room at the Ontario Veterinary College's Mona Campbell Centre for Animal Cancer is a very special place. It is a space where pet owners meet each other, commonly share their stories and, often, bond over their experiences with their pet's cancer treatment. This heartfelt letter tells the story of connections made and it will accompany Buddha's (and Miller's) harness when it is given to the next dog in need. It is written by Jordan Sackman, in Buddha's voice — from one dog, to another.

Early in 2015, while I was off getting one of my post-op chemo treatments, my dad met some lovely people in the waiting room at the OVC animal cancer centre, and they were going through a really hard time. They were the parents of the best friend I never met -a kind, gentle, beautiful soul named Miller the Newfoundland. Miller's parents had, as I'm sure you'll understand, a really hard decision to make. See, I already had my amputation, treatments were underway, and I was feeling pretty darn good considering. So, my experience was helpful for them. They decided to go ahead with the surgery and soon enough, Miller was once again pain-free, as every dog should be, back out and about on all threes, enjoying his ball and awesome family. See back then, this was Miller's harness, given to him by his parents who did everything they could to support and shower him with incredible love. Tragically, my buddy Miller's time came way too soon, and so, with all of the love and gratitude that fills their hearts, Miller's parents left this harness at OVC for me. To honour Miller's legacy, his gift to me, as well as the courage and love of his mom, dad and little brother, my dad embroidered 'A Hug from Miller' on the inside of the harness, and every time he put the harness over my head, dad would say "Here buddy boy, here's a hug from your buddy Miller, Nelson's son, such a good, good, boy." For well over three years and against all odds, I enjoyed the supporting comfort of Miller's harness hugs; I honestly don't know if I could have done it without him. Miller, I love you brother, and my heart overflows with gratitude, buddy.

Well, now my time with this harness has come to an end. It's your turn to participate and carry on with its magic. My dad added on my name, so every time you put on this harness, you are getting huge Newfie hugs from Miller and Buddha. May they lighten your load, so you can live pain-free, and shower your people with incredible love for a long, long time to come. And when you no longer need our hugs, your parents can hand wash it and add your name to the inside before returning our harness to OVC so that the loving community there can find the right dog and family to receive it next.

Listen, my dad, he's a really sentimental kind of guy, and he's been hurting pretty bad since I had to go. Don't tell him I told you this, but he would love to see a picture of you in our harness, and to know that you will appreciate its special story, the incredible community around and the powerful life force that flows through it. And if you ever need to talk about what you're going through, my mom and dad are always there for you; they've got years of experience now with all of this, providing everything, and I mean EVERYTHING, so that I could in comfort fulfill my purpose, make a huge difference in the world in so many ways, and live the life that I so loved to live. Man, did I love living.

Live it up buddy, you've got this, and Miller and Buddha, well, we've got you.

Peace & Love, Buddha

Emergency medicine and critical care is the beating heart of a tertiary care hospital, with the most serious, critical patients coming through the doors. Every year, nearly 2,500 animals, 60 per cent of the pets referred for advanced care to the Ontario Veterinary College (OVC), require care in OVC's Intensive Care Unit (ICU). The ICU plays a crucial role as a central hub within the hospital, for pet owners and for their referring veterinarians. Patients from all OVC services frequent the ICU: from cardiology to neurology to oncology, internal medicine and surgery.

The number of hours per day OVC's

ICU is open to offer care to the most

The number of pets per year

that require advanced care in

The percentage of pets referred

The number of clinicians and

staff across the OVC Companion

Animal Hospital that, at any

in-hospital, hands-on clinical

given time, are providing

training to 30-40 student

veterinarians, all while caring for pets who are

often in critical and life-threatening conditions.

to the OVC Companion Animal Hospital that require care or

recovery within OVC's ICU.

OVC's Intensive Care Unit.

critically ill patients.

# TRANSFUSION *Medicine*

Blood transfusions, transferring components of blood to a pet, are commonly performed on dogs and cats in OVC's ICU. Whether they are being treated for an immune-mediated disease that may be causing anemia or suffering from blood loss from a trauma such as being hit by a car, receiving a transfusion can be a matter of life and death. OVC has its own in-house Blood Donor Program, where volunteer dogs donate approximately 240 units of blood every year to help the critical patients who need it to survive.



# ADVANCED diagnostics

When patients are admitted to the ICU, diagnostics are the first step in their care; they are often in critical condition and in need of a definitive diagnosis for their illness or condition. The ICU staff and doctors assess the patient's condition and provide symptomatic care while specialty teams establish what's medically wrong with the pet. This may involve transporting the patient to provide various diagnostic imaging procedures including ultrasound, CT scan, and MRI, to running bloodwork, and potentially even performing a biopsy, or taking them into the operating room for emergency surgery. "Pet owners need answers; knowing what's wrong with their pet and where they can go from here is important," says Dr. Alexa Bersenas, a board-certified emergency and critical care specialist at OVC. "They're grateful we can keep their pet as comfortable as possible while our teams search for the answers."

# clinical research & training

Clinical research helps veterinarians find new and improved ways to prevent, diagnose and treat disease in pets. Clinical findings drive change and improvements - advancing the standard of care, not just for patients at OVC but across the field of veterinary medicine. Discovery at OVC has changed the way veterinarians control post-operative pain management in pets. Current research involves exploring a new oxygen therapy system for dogs with respiratory distress and for brachycephalic, or flat-nosed, dogs, recovering from anesthesia. Projects are also examining ICU noise and light levels, as well as workflow and optimal staff resources. The Emergency

SUPPORTIVE Care

Full-encompassing care while a pet is in hospital to manage whatever it is they're dealing with is the heart of supportive care. "I fell in love with emergency medicine and critical care because I am directly helping pets and trying to make them feel better by providing them with a warm and comfortable space," says Bersenas. Cats are housed in a separate glassed-in room to reduce stress and the impact of a busy ICU to create a felinefriendly environment. If an animal is nauseous, the team can provide anti-nausea medications; feeding tubes help with nutritional requirements; if they are not able to be up and walking, the medical team can place a urinary catheter; and if the pet isn't breathing well, the ICU is equipped to offer oxygen • and a ventilator, a machine that helps a pet breathe by helping the flow of oxygen throughout the body by pushing air into the lungs.

# CRITICAL COTP How the OVC ICU helps pets...

# PAIN Management

Managing a pet's pain is paramount to helping them stay comfortable and provide relief. A cat or dog may suffer pain for a number of reasons including a cancerous tumour, a trauma, inflammation in their joints or broken limbs, or suffering from abdominal pain from a condition such as a gall bladder rupture or pancreatitis. Different types of pain medications provide comfort in various ways. Many pain medications are delivered as an intravenous (IV) drip. Relief may also be provided through non-pharmaceutical methods such as icing wounds in certain situations and providing comfortable bedding to prevent "bed sores" for those that are too weak to move, as well as nursing care.



# $\bullet \bullet \bullet$

e number of days vear the OVC ICU affed and open to lp pets in need of intensive care.



and Critical Care Service is also one of many areas at OVC that offers specialized training for interns, residents and Doctor of Veterinary Science (DVSc) students. DVSc is a post-doctoral degree dedicated to advanced clinical education and research. The ICU is also home to many patients who are helping discoveries within other veterinary specialties. Examples include improved and non-invasive methods for identifying gastrointestinal bleeding and investigating clotting defects in dogs and cats and establishing individualized response to therapy. OVC Pet Trust funds both clinical research and training in OVC's ICU.

#### **RESEARCH SPOTLIGHT**

Dr. Sonja Fonfara is a board-certified specialist in companion animal cardiology and associate professor at the Ontario Veterinary College.

# GETTING TO THE HEART OF THE MATTER SEARCHING FOR ANSWERS FOR A COMMON HEART DISEASE IN CATS

Ontario Veterinary College (OVC) cardiologist Dr. Sonja Fonfara is passionate about the study and treatment of heart disease in cats. Her quest is to improve the health and welfare of our feline friends by investigating a common heart disease called hypertrophic cardiomyopathy (HCM). HCM occurs when the heart muscle becomes abnormally thick, making it stiff and impairing its function. In some cats this can lead to heart failure and death. Approximately 15 per cent of cats develop HCM in their lifetime and once a cat is more than 10 years of age the risk of developing the disease doubles to nearly 30 per cent. "Identifying that a cat might have HCM can be difficult and unfortunately predicting how it will progress in a specific cat patient is often not possible," Fonfara says. "Some cats can be stable for years while others with similar initial findings can develop heart failure within weeks or months."

The average onset of HCM happens when a cat is approximately six to eight years of age, but cats of all ages can get the disease. Humans can also develop HCM and the condition is known to be genetic. It is suspected that HCM in cats is genetic as well. Veterinary researchers know that some cat breeds are predisposed to developing HCM; Ragdoll and Maine Coon cats, for instance, are found to be affected more often than other breeds.

"Once a cat is in heart failure, supportive care plans are required to both stabilize the patient and offer the best quality of life possible. Unfortunately, there is nothing that can be done to reverse it," Fonfara says. The limited knowledge of how HCM develops, progresses and impacts the lives of cats is what has led Fonfara to investigate this disease further.

"As we currently cannot prevent the onset of HCM or understand the varied speeds in which it develops, our work aims to identify the factors involved in these processes, which may improve diagnosis, "Fonfara says. "We also hope to give cat owners and veterinary care teams a better idea of what to expect as the disease advances and provide improved, more informed, individual care plans."

Fonfara is now working to identify specific pathways responsible for influencing the severity of the disease. This may eventually allow clinicians to use bloodwork as a diagnostic indicator to accurately measure how a cat's disease is developing. She also reinforces the importance of annual veterinary wellness checks for cats to help catch early signs of heart disease.

"Cats are notorious for hiding signs of pain or discomfort," Fonfara says. "Unfortunately, once clinical signs of cardiac disease are physically noticeable to pet owners, a cat is often already experiencing heart failure. If your family veterinarian detects a heart murmur, you may want to explore options about being referred to a veterinary cardiologist," she adds.

Fonfara hopes her work will lead to more answers about a disease we know so little about.

"Can we buy a cat more time before they progress to heart failure? We don't know enough about the disease right now, but there is an opportunity to provide improved patient care and peace of mind for pet owners," Fonfara says. "Cats can cope amazingly well with cardiac disease, even if in heart failure – with treatment many do very well." \$

credit: istock.com/laviu.

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# THE S HEART FACTS

- Anatomically, human hearts are very similar to those of dogs and cats.
- While there are size differences, the function is essentially the same.
- While the cardiovascular systems of cats, dogs and people are similar in many ways, there are differences with the way heart diseases present, progress and are treated.
- The most common form of heart disease in cats and dogs involves the heart muscle itself – cardiomyopathies; in dogs, valvular disease is also common.
- Coronary heart disease, when plaque builds up in arteries, which commonly occurs in humans and can result in heart attacks, is not observed in cats and dogs.

#### SIGNS OF HEART DISEASE IN DOGS AND CATS

Pet owners may consider visiting their veterinarian if their pet experiences any of these clinical signs:

- Difficulty breathing
- Increasing or new cough (in dogs)
- A heart murmur and/or change in heart rate
- Fainting or collapsing
- \* Abdominal swelling or distention
- Less tolerance to exercise

Dogs and cats with congestive heart failure live significantly longer when its condition is co-managed by a boardcertified specialist in cardiology and a primary care veterinarian.



#### **CAMPBELL GIFT HONOURS PAST OVC DEAN STONE** GIFT COMPLETES OVC PET TRUST'S \$9-MILLION CAMPAIGN

Mona Campbell continues to help advance animal health with gift to support new endoscopy unit at the Ontario Veterinary College, University of *Guelph*.

With this support OVC is creating new world-class facilities to help keep the college at the forefront of veterinarv medicine, raise the standard of care and provide the most advanced suraical and anesthesia techniques, diagnoses and treatment in Canada.

Dr. Elizabeth Stone vividly remembers the day she met Mona Campbell at her farm in Puslinch, Ontario in 2005. She and University of Guelph (U of G) professor Ian Duncan arrived at Mohill Farms, known for its numerous award-winning show horses and cattle and beautiful rose gardens, to find Campbell working in her flower garden. Campbell had long admired the work of Duncan, who was the major force behind the internationally recognized animal welfare program at the U of G. From that day forward, a new friendship blossomed. Campbell sent Stone home with fresh-cut flowers after their first meeting, and over the years that followed they developed a close relationship. The two women, both in their own respective leadership roles — Campbell as CEO of Dover Industries and Stone the first female dean of an accredited veterinary school in North America discussed the challenges of leading organizations and moving initiatives forward.

"I valued her wise counsel, her dry sense of humour and her dedication to animals," Stone says, adding that "she shared her farm with cattle, horses, chickens and of course her dear dogs. Mona was always very interested in the welfare of animals, and in what new procedures and treatments were being developed at OVC. Research and progress were important to her."

A new gift has been made in honour of Stone, who served as OVC dean between 2005-2015. The funds will create a dedicated endoscopy unit as part of the new surgery and anesthesia facilities in the OVC Companion Animal Hospital.

"I am grateful to be honoured in such a meaningful way," Stone says. "I am very thankful to Mona's daughters, Sarah Band and Vickie

Macrae, for directing this gift in recognition of my friendship with their mother." Stone values the support that Band and Macrae have themselves provided for companion animal health, which has helped OVC in a variety of areas and improved the health of animals and the learning opportunities for students.

Campbell had a long-standing relationship with the U of G, supporting programs and efforts related to animal welfare and equine health for more than two decades. The OVC cared for many of her animals over the years.

After her death, the U of G received \$9.5 million to advance the areas that were most meaningful to her — companion animal health and animal welfare research and education. At the time it was the largest single donation ever given to the U of G. Half of the funds were used to fully endow a chair in companion animal welfare in the name of her late husband, Col. K.L. Campbell. The other half supported OVC Pet Trust's campaign to create Canada's first comprehensive animal cancer centre, which was named The Mona Campbell Centre for Animal Cancer in her honour and began operation in 2012.

During her lifetime Campbell was recognized as an outstanding business leader. The U of G awarded her an honorary doctorate in 1994 and she was named to the Order of Canada in 1996. Her philanthropy benefited many organizations. As Stone explains, "Mona Campbell's legacy will benefit many generations far into the future." 🏶

# all about ENDOSCOPY

*Used in both human and veterinary medicine, endoscopy is a type of* minimally invasive procedure that lets clinicians see and work inside of the body. It uses an instrument called an endoscope, or "scope" for short. The scopes are long, flexible tubes that have a tiny camera at the end and also channels for passing *very small instruments. The scope is* passed into the windpipe (trachea) or food tube (esophagus) or other body passageways or openings into such organs as the lungs (bronchoscopy), bladder (cystoscopy), stomach (gastroscopy) or colon (colonoscopy).

*Procedures that can be performed* include examining the internal anatomy, taking biopsies, removing a *foreign body and treating conditions* such as bladder stones.

*Endoscopy is usually performed at a* tertiary care veterinary hospital, such as the OVC Health Sciences Centre because the specialized equipment is expensive and the oftentimes complex diseases require collaboration between specialists.

*At OVC, endoscopic procedures are* most commonly performed in dogs, but also in horses and exotic patients, such as birds, snakes and rabbits. In 2017, *OVC performed more than 300 endoscopic procedures.* 

OVC faculty are at the forefront in developing new *endoscopic techniques in animals. The new* endoscopy suite within the OVC Companion Animal Hospital will support their clinical research and benefit their patients and pet owners whose animals are in need of care.

# Life on OVC's Emergency & Critical Care Service

Welcome to the world of emergency and critical care, a complex area of veterinary medicine which often involves constant monitoring and comprehensive, multidisciplinary care for its patients. Every pet has a different story unfolding simultaneously in the Intensive Care Unit (ICU) at the Ontario Veterinary College (OVC). One pet may be undergoing advanced diagnostics to determine what its illness, injury or condition might be. Another may be waking up from a life-saving procedure in need of constant care and supervision while it recovers. Another pet may be struggling with a serious medical emergency that requires immediate treatment or intervention to help save its life.

Thousands of companion animals with the most serious and life-threatening medical conditions are referred to the OVC Companion Animal Hospital each year. Registered Veterinary Technician (RVT) Kathy Taylor has

spent the past 25 years of her career working on the floor of OVC's ICU, caring for some of the most critical animals that are admitted to the tertiary referral hospital. As an RVT, Kathy's job is to support and care for every pet that passes through the ICU doors. She is part of a comprehensive medical care team led by ICU Service Chief Dr. Alexa Bersenas, an OVC faculty member and a board-certified Veterinary Emergency and Critical Care Specialist. Our writer went behind-the-scenes of OVC's ICU and spent the day shadowing Kathy to capture what life is like in the fast-paced and intricate world of veterinary emergency medicine and critical care.

6:30AM Providing care in OVC's ICU can sometimes be compared to a relay race: it is a long and constant road and you need multiple team members to communicate well and work closely together under pressure.

In photo: Mona Campbell

Much like a relay, the day begins with rounds, essentially the careful passing of the "baton" from one team member to another. Kathy rounds with nightshift RVT Michelle, reviewing each patient's case that is currently under their care. Rounding helps facilitate the transfer of care between shifts, which are typically 12 hours long for RVTs in the ICU. Michelle recaps her shift to Kathy, sharing that a dog came in overnight who had been hit by a car and another that was admitted for an emergency gastric dilatation and volvulus (GDV), a serious condition that blocks the blood supply to the stomach and requires immediate surgery. Meanwhile, a few feet away, veterinary resident Dr. Patricia Biello tends to a toy Poodle who is on a mechanical ventilator to help him breathe.

7:01AM Kathy helps a new RVT named Beth navigate her way through the



ICU, as RVT Julie also begins her shift. Kathy and Julie round together and update the team on the medical status of each of their patients. Up-to-the-moment information is shared. Who is eating? Who is not? Who is able to go for a walk outside? There are currently 15 patients in ICU care.

7:20AM Vitals for each patient are checked, starting with the most critical ones. Bloodwork is commonly drawn earlier in the day and sent off for testing. Dr. Alexa Bersenas arrives to consult with her resident about a dog patient who is on life support to manage his pneumonia.

7:45AM Kathy escorts Dolly, a Cocker Spaniel, for a walk outdoors, before checking in on the GDV patient who is due for his pain medication. Kathy then collects Dolly's bloodwork and helps Beth prepare and administer her medication. The ICU is stocked with a secure digital drug dispenser – most supplies are kept within the ICU including catheter and chest tubes, but the pharmacy in the OVC Health Sciences Centre (OVC HSC) also regularly drops off drugs throughout the day.

7:50AM The ICU is a busy, noisy environment. There are many monitors, devices and associated alarms going off intermittently. "Pets stay in the ICU until they are stable and eating and drinking on their own," Kathy explains. "Depending on their case and condition our patients may require further recovery in the hospital wards before they go home." Kathy changes a dog's bandages and takes his temperature. She commonly refers to

Life on OVC's Emergeny & Critical Care Service continued from page 13.

boat accident too," Kathy says. There is constant discussion about each patient's history, status and medication regime.

**10:01AM** Each hour in the ICU brings

new patients, challenges and situations. OVC's ICU is home to numerous advanced treatments and specialized equipment. Today Kathy has a one-hour training session scheduled off the clinic floor to further her professional development in thromboelastogram (TEG), or how to assess blood clots in pets, which will help her evaluate the patients in her daily job. Kathy is a Veterinary Technician Specialist (VTS) certified in emergency and critical care and takes pride is staying up-to-date on the most innovative practices in her field. "Our role as RVTs is to provide front-line nursing support," explains Kathy, adding that she regularly troubleshoots with the veterinarians on their team.

**11:16AM** Kathy has an overwhelming calmness to her, while being a fierce multi-tasker in a dynamic, sometimes frantic environment. She uses the word "dramas" to refer to critical incidents. Currently there is only one dog on a ventilator, and most of her other patients are stable, with minimal "dramas" so far today. "That's good," she smiles. "Our ICU is often at capacity. We manage as best as we can." Keeping tabs on each patients' blood work, values and vitals, ensuring medical charts are accurate and up-to-date and adjusting fluids as needed keeps the team busy. A Weimaraner dog who has had trouble emptying his bladder is due for his medication.

**12:00PM** Kathy helps take a blood glucose test on a diabetic Miniature Schnauzer, using a glucometer device similar to the one used for people to manage diabetes. There is never a spare moment. RVTs Julie and Beth re-bandage Marley, a Chocolate Labrador Retriever. "We watch bandages and dressings closely, and change them frequently," Kathy says.

12:08PM Emergency referral patient Charlie, a nine-year-old Cocker Spaniel, arrives in the ICU. Dr. Sabrina Avoub is the dayshift emergency intern today; in consultation with the team, she assesses incoming emergency cases, admits patients and makes plans for care determining if the pet needs surgery or to be transferred to another specialty service at OVC. RVT Deb triages incoming patients and helps with intake, getting owners settled in a private room, taking patient history and the pet's vitals.



12:15PM Coordination in the ICU involves communication with the various specialty service units across the hospital. Kathy reviews the surgical schedule for the day to help anticipate which patients may be moved to the ICU. The OVC HSC is a teaching hospital, and learning is present in all aspects of helping patients. "Teaching plays a role in almost everything we do," Kathy shares. "Whether it is working with student veterinarians, new RVTs or new clinicians – learning happens continuously each and every day. I love being able to share my knowledge and experience with colleagues, help administer treatment plans and guide techniques and procedures," she says. Kathy makes a list of medical devices needed to treat newly-admitted

Photo credit: Ashleigh Martyn.



medical charts as she goes.

**1:30PM** Dr. Avoub inserts a catheter into Charlie, with the help of a portable ultrasound and Dr. Bersenas' guidance. After placing the IV catheter, Kathy processes his bloodwork; rapid results can help the team know Charlie's immediate needs. Dr. Bersenas examines Charlie and requests a consult from the OVC Neurology Service. Dr. Bersenas kisses Charlie on the head and gives him an affectionate chest rub as if the dog was her own. "Hang in there, Charlie. We've got you, buddy."

1:45PM A Pug named Sydney arrives from surgery who has had a spay and a resection of the soft palate, a procedure to help him breathe better. Resident Dr. Lillian Cousto asks Kathy for help to make space for her patient. "We'll make it happen!" she smiles. Working in a positive team environment is one of her favourite parts of the job. "Everyone adds value to the level of guality care we provide," Kathy says. "It's a gift to work with amazing people. Some days we all go home exhausted, but we come back the next shift and continue to pour our energy into the well-being of our patients. "

**2:30PM** Dr. Bersenas reiterates the principles of pain management to her team. "How severe is our patient's pain? They can't verbally tell us – but we can interpret it." A Whippet is expected to arrive in the ICU soon. A dog patient is going home and his owners stop by to thank the veterinary team for the care they provided for their dog. Kathy says grateful clients often want to thank their pet's care team. "For us, we treat every pet like they're our own," she says, acknowledging kind gestures like this can make her dav.

3:00PM "Unfortunately, we can't give everyone the ending they're hoping for, but sometimes other options are the best ones possible," Kathy reflects. "We have a number of benefits we can offer to our patients and their families. We can help a pet feel comfortable when they're in pain and suffering. We can be there to inform, support and advise pet owners on the options in front of them when they are facing difficult decisions. We can give families more time with their beloved companion and provide them with an opportunity to say goodbye, on their own terms."

## **3:45PM** The ICU is a balancing act on

with the overflow of patients requiring care. >>

the main space acts as an "emergency room"

component for in-take and assessment of new

Room, a special separate area for cat patients.

patients: one is recovering from ingesting a for-

eign body. Another cat, Eddie, is being examined

for possible internal bleeding. A special diffuser,

much resembling a plug-in air freshener, helps

provide cat patients with a calming, comforting

and de-stressing environment. An intermediate

care zone, a separate room connected to ICU, is

designated for less critical patients and to help

patients. Off the main space is the ICU Ouiet

This morning Kathy checks on two feline

8:45AM Teddy, a Shih Tzu dog, was admitted overnight after being hit by a car. "Unfortunately, we see a lot of pets who have been hit by cars in the summer months – sometimes it may be a motorcycle, tractor or

patients and places an order with the hospital's supply room. She continues to constantly evaluate her patients' status, filling out their individual

all fronts. Kathy helps prepare a cat for a visit with his owners. Charlie is escorted by Dr.

Bersenas to OVC's Diagnostic Imaging Service for a contrast-guided radiograph to learn more about his condition. The team gets word that a new dog patient named Ginger will be arriving imminently

4:02PM Dr. Tiffany Jagodich begins her shift, a third year Doctor of Veterinary Science (DVSc) student. She coaches intern Dr. Ayoub on talking to Ginger's owner about the risks of inserting a chest tube, which she will require to treat her pneumothorax, the cause of her collapsed lung. "We hope it will be our fix but there are never guarantees."

5:06PM Kathy sits calmly with Ginger, resting a gentle hand on her body as her owner visits her, understandably emotional. "If pet owners are stressed and worried about their pet during the day, or laying awake in the middle



of the night, I want them to be assured that someone on our floor is thinking of their pet too," Kathy says. "I talk to my patients as if they were people," Dr. Jagodich confesses, smiling. "It can be hard for pets to be in an unfamiliar environment. I like to think that if I explain what is happening or what I am doing, it will bring them some comfort."

**6:31PM** Kathy's 12-hour shift has come to an end, but OVC'S ICU is staffed 24 hours a day, 7 days a week, 365 days a year. Two nightshift RVTs finish rounds with Kathy, the "baton" has been passed and they have taken over for the night. Dr. Jagodich will be here for most of the evening. She places the chest tube in Ginger, an intricate procedure, and immediately the dog is able to breathe better, her chest rising and falling more normally. Even though Ginger isn't out of the woods yet, she is now able to breathe more comfortably. "It's powerful what one procedure can do to help a life. Isn't emergency medicine the best?" 🏶

# BRAIN WAVES Exploring the complexities of canine epilepsy

Imagine you're at a giant sports stadium with millions of people. Now imagine every person yelling the word "goal!" at the exact same time. The possibility of that unified shouting would be overwhelming and a rare occurrence.

In a nutshell, this is how Dr. Fiona James would try to very simply describe a seizure to a pet owner: in this analogy the sports stadium is the brain, the millions of people in the crowd are the neurons (specialized cells in the brain) and the word they cheer together in unison is a seizure.

James explains her work as a veterinary specialist (to measure, record and analyze a seizure) with the same analogy – it involves placing very precise microphones located in the ceilings throughout the stadium (the brain) to try to pick up the words being spoken by the crowd (seizure) to better decipher what's being said by the people (neurons).

The "microphones" she uses are a component of a monitoring method to record electrical activity in the brain called electroencephalography (EEG). Conducting an EEG involves placing tiny, non-invasive electrodes on the head. By interpreting the brain waves of data transmitted by the microphones (electrodes), neurologists can diagnose and decode what type of seizure a patient may be experiencing. In the comparison, a generalized (grand mal) seizure would be every single person in the crowd saying the same word. A focal (petit mal) seizure would be half the stadium saying the same word. The analogy isn't perfect; in reality it is much more complex, but the story helps many pet owners understand the mechanics of a seizure.

"The brain is intricate. Many of the same networks in the brain responsible for learning and forming memories are also associated with epilepsy," James says. In the analogy, the neurons in some specific regions of the brain, for example, the hippocampus and the amygdala, are the rowdy individuals in the stadium who start the commotion (seizure).

According to Epilepsy Canada it is estimated that 0.6% of Canadians have epilepsy, with approximately 15,500 new human cases diagnosed each year. In veterinary medicine, working dog breeds such as retrievers, shepherds, collies and hounds are more commonly diagnosed with the condition. James says that humans and dogs with epilepsy share many parallels, such as similar types of seizures, similar drugs for treatment and the disorder is naturally-occurring in both species. James is a board-certified

veterinary neurologist at the Ontario Veterinary College (OVC), University of Guelph and a leading global expert in canine epilepsy. In 2017, she was part of an international team that discovered a defect in a gene in Rhodesian Ridgeback dogs that had never been associated with epilepsy in humans or animals before. The breakthrough, funded in part by OVC Pet Trust, will help researchers explore new treatments and open new pathways for future investigations of epilepsy in dogs. It may hold promise for humans with the neurological disorder as well. The findings from this study are significant; and while the discovery doesn't pinpoint the cause of epilepsy, disorder, as a whole.

For James and her team, epilepsy is the most common medical referral to the Neurology Service at the OVC **Companion Animal Hospital. She sees** the most challenging, complex cases where the goals are usually to accurately diagnose, manage and adjust treatment.

an EEG. Photo credit: Jane Dawkins

James' specialty is diagnosing

Dr. Fiona James is a member of the

seizures and epilepsy in dogs using awake EEG, a gold standard in human medicine. EEGs in veterinary medicine are performed by neurologists and have historically been conducted when the pet is under sedation or general anesthesia. But since clinicians can better detect seizures when patients are awake and moving around normally. James adapted a belt pack unit used in human medicine into a backpack for her canine patients, a first in the veterinary world. The backpack holds a wireless transmitter which records brain activity while the dog is awake and sends data back to a computer for analysis. She is one of only a handful of people worldwide who are experts in placing EEG electrodes and interpreting awake EEG recordings in dogs, and she has worked extensively with collaborators and mentors at Toronto's Hospital for Sick Children (SickKids) in her quest to better understand canine epilepsy. James is currently gathering and analyzing data captured by EEGs in dogs around the world. Her goal is to make EEG tests easier, better and faster. Working with a number of global specialists, she hopes the data will help establish patterns and eventually lead to guiding treatment

decisions in pets.

"We know that, unfortunately, 30 per cent of dogs with epilepsy do not respond to their medications. In veterinary medicine, we currently do not have recommendations based on scientific evidence for why one treatment may work better than another," James says.

James is also involved in collaboit brings us closer to understanding the rative work at OVC studying how stem cells develop in the brains of epileptic patients and the role big data may play when comparing EEG seizure data in dogs versus humans.

> "Many dogs with epilepsy can manage their disorder with treatment from their primary care veterinarian and have a very good quality of life. The better we can get at EEG, the more we can understand about the disorder and help the patients who have difficulty controlling their seizures have more good days than bad ones with their families." James says. 🏶

What is Epilepsy?

Epilepsy is defined as a disorder of the brain characterized by an enduring predisposition to generate epileptic seizure. This definition is usually practically applied to a patient who has had at least two unprovoked epileptic seizures less than 24 hours apart. The term "seizure" is used for any sudden, short-lasting and transient event, but it does not necessarily imply that the event is epileptic.

### What to do if your dog has a seizure.

A seizure is a major metabolic event and has a significant impact on the brain and body as a whole. If you suspect your pet has had or is having a seizure:

- Keep your pet cool. Seizures can raise a dog's core body temperature. Provide water and air conditioning if possible. Spray cold water on their feet and put ice packs in their arm pits.
- Never put your hands in or around the mouth of a pet who is having a seizure. They may bite their tongue, but they will not swallow it. Since dogs are usually unconscious and not aware of what's happening during a seizure, they may bite or cause injury to people.
- If you need to move your pet to a safe place or out of the direct sun while they are having a seizure, roll them onto a blanket and drag them on it to move them.
- Many dogs will be confused and disoriented after a seizure. Keep a close eye on them to make sure they're safe until you can contact your veterinarian to discuss next steps.

# **Cancer SURGEON** pushes boundaries for animal health

#### 3-D IMPLANT SURGERY, FIRST IN NORTH AMERICA

For the first known time in North America, Ontario Veterinary College (OVC) board-certified veterinary surgical oncologist Dr. Michelle Oblak led a successful reconstructive skull surgery implanting a custom 3-D printed skull plate in a dog.

When Patches, an eight-year-old dachshund, presented to Dr. Galina Hayes at Cornell University's College of Veterinary Medicine with a large cancerous growth on her skull, Oblak's former OVC colleague, and soft tissue surgeon, contacted her for advice on the difficult case.

As a veterinary surgical oncologist and an assistant professor in soft tissue surgery at the OVC, Oblak has a special interest in canine skull tumours and she recently published a book chapter on the topic. She has also been researching better ways to develop surgical plans and ISS, a company that develops 3-D printed medicine are, and will continue to be, reconstruct the skulls in these patients. As part of this work, Oblak is a member of the OVC RaPPID (rapid prototyping of patient-specific implants for dogs) team. The group is looking at the feasibility of 3-D printed materials and rapid prototyping for surgical planning and patient-specific, personalized implants for dogs. Rapid prototyping involves constructing a model using 3-D computer-aided design data. When she heard about Patches and saw her CT scans, she thought that it might be the perfect case to offer this up-and-coming, cutting-edge surgical option.

Since the cancerous tumour was growing within the bone of Patches'

skull, the surgical team estimated they needed to take out almost 75 per cent of the top area of her skull that covered her brain in order to remove as much cancer as possible.

"Given the complexity of the area and the amount of brain exposed, we knew we would need some sort of reconstruction after removing the tumour," Oblak explains. "We also wanted to plan our surgical approach in advance, especially if we wanted to save Patches' eye, which was being threatened by the tumour's aggressive growth."

Working with Dr. Alex zur Linden, a board-certified veterinary radiologist at OVC, and John Phillips, an engineer with Sheridan CAMDT, Oblak imaged and built a 3-D model of Patches' skull. The team then worked in collaboration with ADEmedical devices for human medicine, to access software designed for mapping and modelling human skulls for her dog patient. The software allowed her to plan the anticipated skull defect, as well as, design and print a custom titanium plate for Patches' upcoming surgery. Less than a month after receiving Hayes' phone call, with a physical skull model and personalized skull plate in hand, Oblak travelled to the United States to lend her expertise to the case. Oblak and Hayes performed the three-hour surgery this past spring in New York. After removing the tumour, the implant was placed to protect Patches' brain and soft skull tissue, and it fit perfectly. Oblak says

without the technology, the team may have spent up to an additional two hours in the operating room, contouring a titanium mesh, an option that would not have had the same cosmetic outcome for Patches as the custom 3-D implant.

The surgery was an overwhelming success. Patches woke up normally from general anesthesia following the procedure and was alert and looking around within a half an hour. Oblak was able to offer a customized, state-of-the-art 3-D printed implant option to a canine patient and their family for the very first time in North America.

"I am thrilled I had the opportunity to provide something as ground-break ing as this procedure for a dog," Oblak says. "The benefits of incorporating 3-D print technology into veterinary incredibly impactful – allowing us to offer faster, safer and improved surgeries for our pets. The benefits apply well beyond reconstructive surgery like Patches'. 3-D printed implants also have the ability to help in trauma, limb-deformity and fracture cases as well," she explains, adding that there is remarkable potential for rapid prototyping to help both humans and animals alike.

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Oblak says one of the best parts of working in academia is to explore new, different and better ways to help her patients. "Innovation and progress is what inspires me each and every day."

#### Photo reel, imaaes from top to bottom:

Patches with her tumour, prior to surgery; Patches' tumour with Oblak's 3-D printed model used to create the surgical plan; Drs. **Oblak and Hayes** conducting Patches' surgery at Cornell University; Oblak shows how the titanium 3-D printed plate will fit on Patches' skull with her 3-D model; The tumour, removed, right, with 3-D print model, left; Patches, wakes up after surgery; Patches has her stitches removed, two-weeks after her surgery.

Dr. Michelle Oblak is an assistant *professor and board-certified* veterinary surgical oncologist at the Ontario Veterinary College. She is an OVC Pet Trust-funded researcher with a focus on translational medicine and has several collaborations considering dogs as a naturally occurring disease model for cancer in humans.

# ON THE FOREFRONT OF VETERINARY MEDICINE

Harnessing the Impact of BIG DATA to Advance Insights into Pet Health

What if there was a way to predict and respond to natural disasters? What if you could help track climate change by documenting when your skating rink freezes from your own backyard? What if blockchain, the intricate technology behind the cryptocurrency Bitcoin and a powerful tool for efficiency, could regulate the complex global food supply system?

These are only a few of the applications of the use of big data in our everyday lives, and all these examples are currently being developed across the world today. From safe food production to improved animal health, researchers at the University of Guelph are also working with big data, enabling people to make more informed decision-making at a speed that has never been possible before.

Big data involve extremely large data sets that may be analyzed using artificial intelligence (AI), such as machine learning, to aggregate and identify patterns and trends and it is revolutionizing many industries. Big data has been dubbed as "the new oil" and many believe that our future may in fact depend

on it. Dr. Theresa Bernardo, a professor in the department of Population Medicine at the Ontario Veterinary College, is the IDEXX Chair in Emerging Technologies and Bond-Centred Animal Healthcare. Her team is currently using big data to look at how we can accurately predict the average weight of cats over their lifetimes to allow for a more personalized model of medicine and preventive approach to healthcare.

In the veterinary world, there is already a great deal of data used as a preventive tool within agriculture for production animals such as cattle and sheep, but we haven't yet made full use of population data to prevent or predict illness in companion animals.

Instrumental in Bernardo's guest to find answers is IDEXX Laboratories, Inc., a leader in pet healthcare innovation, serving veterinarians around the world in 175 countries with a broad range of diagnostic and information technology-based products and services. IDEXX has provided Bernardo's team with health data from 19.4 million cats collected over a 35-year period, from 1981 to 2016. Statistics include age, gender, breed, weight and reproductive status. Having access to this amount of data for cats is unprecedented and it has helped her team generate models to be able to

"There is a unique opportunity to combine this information with diagnostic test data and gain valuable insights into the interactions between weight and health as well as potential interventions to increase the number of years of healthy life for our pets," she says. She also suggests that discussions about body weight throughout a pet's lifetime could be a useful gateway to engage more cat owners in the health of their pets.

accurately predict the average weight of cats as they age.

Technology is a tool for both veterinarians and pet owners. We are making important advances, both in clinical outcomes that can improve and lengthen the lives of pets, and in how veterinary students and practicing veterinarians can access, interpret and use big data to improve their patients' health.

out trends."

Bernardo's work sets the stage for a more personalized model of veterinary medicine. An equation calculator or algorithm for cats is in the works and an upcoming scientific publication will share their findings with veterinarians in general practice, and by extension, to pet owners as well. "Technology is a tool for both veterinarians and pet

"A pet's weight is an easy point of entry into datadriven animal wellness," Bernardo explains. "The monitoring of body weight is an important indicator of health in both humans and animals. It is a data point that is commonly collected within each medical appointment and it is accessible and simple to monitor at home." Bernardo's team has been focused on looking at patterns of weight gain and loss over the lifetime of a cat. Questions her team seek to answer included: when do cats become skinny? What is average weight loss over time? What is the projected average weight for a cat based on breed, gender and reproductive status? Since most animals die from chronic diseases versus infectious

> diseases, Bernardo hopes their work can help pet owners understand what weight gain and loss looks like over a cat's lifetime and what we can predict from big data about their current and future health on an individual level. Next steps will be to look at the potential impact technology, such as sensors and automated feeders, may have in achieving healthy weights for cats and strengthening the human-animal bond.

"Thanks to the information IDEXX has provided, we now know that cats tend to lose weight between six and 10 years of age, depending on their breed, gender and whether or not they have been neutered or spayed."

OVC is uniquely positioned because of their relationship with IDEXX and opportunities are evolving as technology drives change. "Our team works collaboratively across campus at the University of Guelph with world-caliber experts who specialize in computer science and machine learning to drill down on what we can learn from this data and map

owners," says Bernardo. "We are making important advances, both in clinical outcomes that can improve and lengthen the lives of pets, and in how veterinary students and practicing veterinarians can access, interpret and use big data to improve their patients' health." \*

Dr. Theresa Bernardo is an international leader in addressina complex health problems through *technology and has experience* using emerging technologies to save lives in disasters, includina the worldwide flu epidemic (H1N1) and Haiti earthquake. Her work at the Ontario Veterinary Colleae (OVC) aims to improve the health and well-being of animals, their caregivers and communities.

data

#### MILLION

The number of cat health records IDEXX supplied to Bernardo's team to analyze and accurately predict the average weight of cats.

YEARS

The number of years (from 1981 to 2016) that data from millions of cats was collected and examined for this study.

The age range Bernardo's team discovered that cats tend to lose weight during their lifetime.



# PAW IT FORWARD VCA Canada gives back to life's greatest companions

"Thank you so much for helping me and my dog. You people are all amazing!" says a middle-aged woman, smiling vibrantly from ear-to-ear on a gloomy early June morning in Hamilton, Ontario. "You have no idea how much this means to me."

It doesn't take very long to appreciate the magic of VCA Canada's Pet Food Pantry when you witness the event in action, an initiative that takes place across communities marginalized pet owners to sacrifice their in Canada, as part of VCA's Paw It Forward program. Paw It Forward puts the community times, people will feed their pet before them- profession to learn about the importance first – driving national, regional and local endeavours. From supporting local humane societies and rescue groups; to enhancing awareness and learning of animal health and companies to support VCA's Pet Food Pantry welfare issues; to providing food for displaced pets and assisting local families and pets in need, Paw It Forward is VCA's all-encompass- whose families are in need. VCA volunteers ing way of giving back. Whether it's running a also regularly visit communities in Vancouver Pet Food Pantry event in a Canadian community in need, providing funding for patient care in one of their hospitals, responding to emergency and disaster relief or donating to OVC Pet Trust, Paw It Forward and giving back of themselves. to companion animal health and well-being is embedded into the company's culture.

"At the heart of Paw It Forward is the human-animal bond," says Darren Johnson, Vice President of Strategic Partnerships at VCA Canada.

Various VCA staff including veterinarians, registered veterinary technicians (RVTs) and administrative staff volunteer their time to run Paw It Forward events across Canada.

"We know it is not uncommon for own food for their pets," Johnson says. "Many nity for students entering the veterinary selves, which really speaks to the human-animal bond."

event, and over the past five years more than 1.3 million meals have been served to pets and Toronto to help people that live on the streets with their pets. They give out pet food and honouring a treasured companion. as well as snacks and gift cards to pet owners to purchase a meal, so they can also take care back is our way of repaying the pets in our

VCA Canada began under the name Associate Veterinary Clinics (AVC) with four

hospitals in the Calgary area in the 1960s. Today they're owned by Mars and operate more than 100 hospitals across Canada, with approximately 800 hospitals in the United States.

VCA also supports a camp retreat for incoming first-year student veterinarians at the Ontario Veterinary College (OVC) at the Bark Lake Leadership and Conference Centre. The retreat provides an opportuof communication and peer-support, take part in trust-building exercises and discover Food products are donated by a variety of more about the profession they've chosen to pursue.

> More than three-quarters of VCA hospitals across Ontario support OVC Pet Trust through the Pet Memorial Program, a way to give back to research and discovery to improve pet health and well-being, while remembering

"Ultimately, everything we do to give lives for all the love they give us. I think that really sums it up," Johnson says. "Our pets give us so much; it's the least we can do." 🍄

### 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

#### Predictors of disease outcome in dog bone and breast cancers by digital microscopy Dr. Geoffrey Wood

Establish the most clinically-relevant and powerful predictive tools for application in routine biopsy analysis of bone and breast cancers in dogs.

#### Diagnosing heart failure in Doberman Pinschers

Prof. Glen Pyle Develop a test that may be used to identify dogs with early signs of dilated cardiomyopathy to allow for early treatment and increase life expectancy.

#### Evaluation of bone plate strain following fracture repair using different screw configurations

Dr. Noel Moens By identifying configurations that result in decreased plate strain, find ways to reduce plate and fracture failure.

#### Investigating novel circulating biomarkers in dog bone cancer Prof. Alicia Viloria-Petit

There are no reliable markers to predict how well a dog will respond to treatment of osteosarcoma. This project will investigate whether small vesicles released into the blood from the tumour could serve as these predictive biomarkers and will benefit patients by providing a minimally invasive method of diagnosis and guiding treatment.

#### Monitoring canine influenza in Ontario Dr. Scott Weese

Dog flu is a foreign disease that has recently invaded Ontario and has potential to spread widely. A better understanding of the transmission of the virus is needed to contain spread and limit the impact on the Ontario dog population.

#### A classification scheme for leukemia in dogs

Dr. Janet Beeler-Marfisi

Ashleigh Martyn.

Leukemia is a variable cancer. This project will identify what features of the patient or tumour best predict the prognosis, helping veterinarians and owners make better and more cost-effective decisions about treatment and long-term outcome.

#### Can training reduce fear in dogs during veterinary examinations? Prof. Lee Niel

Specialized training programs are practical and effective for reducing dog fear during veterinary care. This project aims to encourage use by veterinary staff and owners to improve dog welfare and human safety in clinic settings.

Dr. Tony Mutsaers

nanoparticles in dogs Dr. Michelle Oblak

# Dr. Alice Defarges

Investigate how and when to treat patients more aggressively for gastrointestinal bleeding by analyzing a simple blood ratio available in all routine biochemistry profiles.

# bladder cancer

Dr. Samuel Hocker this cancer.

#### Determining the bursting strength of intestinal resection and anastomosis using surgical stapling devices Dr. Ameet Singh Optimize the method for performing intestinal anastomosis which is commonly performed by small animal veterinarians.

Dr. Shauna Blois The gastrointestinal microbiome has a major impact on health and disease. This project is aimed to understand the impacts of housing type and time on the healthy microbiome. Future research will apply these findings to microbiome studies in dogs with disease.

of Lyme disease Dr. Scott Weese

#### Investigating specific proteins in the blood of canine osteosarcoma patients at the time of diagnosis to more accurately predict expected outcomes for owners

Dog bone cancer is an aggressive disease. By analyzing proteins from a blood sample acquired at the time of diagnosis, a test may be helpful to accurately predict patient outcome.

#### **Obstructing blood flow to the prostate** gland as a treatment for prostate cancer in combination with administered gold

Investigate a novel treatment for canine prostate tumours, which may result in more specific targeting of cancer tissue compared to current treatment options. Results may be applicable in the future to other cancers in dogs and humans.

#### Blood ratios to help localize gastrointestinal hemorrhage in dogs

#### Investigation of receptor expression on specific blood cells in dogs with urinary

Gain new insights into how urothelial carcinoma affects the immune system, and whether immunotherapy may play a role in the treatment of

#### Investigating the impact of housing and time on the gut microbiome in dogs

#### Culture of Borrelia burgdorferi, the cause

Lyme disease is an emerging problem in dogs in Ontario, yet there are many areas that are poorly

understood. Investigation of the ability to isolate the bacterium from dogs is needed to optimize diagnosis and to provide bacterial isolate to characterize the disease and evaluate treatment options.

#### Expanding our toolkit to diagnose brain diseases in doos

Dr. Stefan Keller

Develop a novel method to aid in the diagnosis of brain diseases in dogs which could help guide treatment and potentially provide prognostic information.

#### Stem cells to treat elbow dysplasia in dogs

Dr. Thomas Koch

Stem cells may provide pain relief to dogs suffering from elbow joint pain due to elbow dysplasia. Delay of surgery or reduced need for conventional drugs may be possible.

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

Dr. Anthony Abrams-Ogg

Platelet function testing is important to improve treatment with blood thinners. This project 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.

#### **DOG & CAT HEALTH**

#### Nutritional adequacy of commercially-available vegan and vegetarian dog and cat foods

Dr. Adronie Verbrugghe Provide veterinarians and pet owners with a resource to make informed dietary decisions for dogs and cats.

#### **AVIAN & EXOTIC HEALTH**

#### Blood cholesterol and fat diagnostic tests and the effect of statin drugs in Quaker parrots

#### Dr. Hugues Beaufrère

Optimize and validate blood diagnostic tests for fat disorders in Quaker parrots which are common, but poorly diagnosed. This project also aims to quantify the effect of statin drugs on blood cholesterol and fat in parrots, providing potential treatments for several common fat-related diseases.

#### The pharmacology of midazolam in the ball python

#### Dr. Hugues Beaufrère

Midazolam is one of the most common sedatives used in reptiles. This project aims to provide new information on its use in snakes, which will help provide recommendations on safe and effective doses for clinical use in captive snakes.



#### GETTING TO KNOW... DR. NOEL MOENS SMALL ANIMAL SURGEON AND ASSOCIATE PROFESSOR DEPARTMENT OF CLINICAL STUDIES **ONTARIO VETERINARY COLLEGE UNIVERSITY OF GUELPH**

#### Why did you pursue a career in veterinary medicine? Why surgery?

I have always wanted to be a veterinarian for as long as I can remember; I have never wanted to do anything else. I grew up in the country, surrounded with pets of all kinds. My interest in surgery came to me during veterinary school. I guickly developed an interest in surgery and immediately developed a passion for orthopedics, the area of medicine that deals with the correction of deformities of bones and muscles. I started volunteering in the operating room during my second year of veterinary school and have never looked back. I have always enjoyed building and fixing all sorts of things....so fixing bones just seems to be a perfect fit and my career has been completely focused on orthopedics since then.

#### What research projects are you currently working on?

Right now, I am working on a project that looks at plates used for the repair of bone

fractures. In particular, I am studying the effect of the screw configuration (how many are used and where they are placed on the plate) and how it affects the plate's resistance to bending. Pet owners may assume that surgically fixing a bone only involves placing a plate on it and all should be fine. This is actually not the case; many decisions have to be made by the surgeons to ensure our patients recover and have the best possible outcome. The majority of the time we get it right but occasionally we see plates break before the bone has time to heal. The more information we have to help us make the right decision, the less likely it is to fail. Another project I am involved with is to find a repeatable and accurate method of measuring bone deformities associated with patellar luxation. Patellar, also known as the kneecap, luxation is a frequent disease affecting small breed dogs but is becoming more frequent in large breeds as well and occurs when the kneecap is dislocated from its normal position. It is often caused by limb malalignment caused by developmental reasons in the hind leg. In the past, correction of the problem was resolved by

replacing the kneecap back into position but without addressing the root of the problem, which is the limb deformity. Although this technique works well in mild cases, more severe cases typically suffered from a recurrence rate as high as 40 per cent. The main reason why the deformities were not corrected before was the difficulty to obtain accurate measurements of those deformities using diagnostic imaging. Today, CT scanners have become widely accessible and they allow 3-D images of the bones to be taken. The images generated from the CT allow us to measure all the deformities with much greater accuracy and precision compared to in the past. With my research team, we are developing techniques to measure those deformities and hopefully improve the results of the surgery for our patients suffering with severe limb deformities.

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

OVC Pet Trust has provided funding for most of my research. Not only has Pet Trust provided funding to me, but it has also supported many of my surgery residents' projects as well. Pet Trust aligns with my primary focus, which is clinical-based work and discovery to help pets.

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

I am very excited to see the new surgery area. From what I know about the space from our planning sessions, it will be an impressive, state-of-the-art facility. Our current operating rooms are becoming very crowded and dated. Because of the increased surgical caseload the OVC Companion Animal Hospital has experienced in the past few years, we are often competing for rooms and have to juggle our schedules to ensure that all the cases can be cared for in the best order possible. Although we never compromise on sterility or cleanliness, crowded and busy operating rooms are much more difficult to manage and maintain. Having the new facilities will only improve patient care and experience for everyone. 😵



A deep, enduring love for dogs has always been a driving force in my life. I hoped and planned to be a veterinarian from a young age, knowing that I would be able to return some of the care and devotion these unique companions so generously share with their people.

As a very young girl, I would spend my days loving, grooming and playing with my childhood dogs, Candy, Nugget and Tyffy. When I close my eyes, I can picture each of them listening as I shared my fears, exploring beside me as I learned about our world, and walking with me as I took each step forward. They remain such a big part of memories of my childhood home. I will always be grateful to my parents for enriching my life with canine family members and for encouraging my love and concern for all animals.

Not long ago, I learned of the term "Heart Dog". Just writing those two words brings warm tears of happy memories to my eyes. If you aren't familiar with this saying, you may have heard these very special pets referred to as "canine soul mates" or "once in a lifetime dogs". For each person who has known and loved a "Heart Dog", a different set of circumstances, personal needs and canine characteristics were uniquely combined to produce this serendipitous bond.

I have been fortunate enough to walk some of my steps in this life with a "Heart Dog" by my side. My "Heart Dog" was a Flat-Coated Retriever named Lyvie and she helped to shape the person and the veterinarian I am today. Soon after graduation from veterinary school, I had been recently divorced and was living on my own for the first time in my life. The day my Lyvie came home was one of the best days of my life.

Flat-Coats are well known as the Peter Pan of dogs because of their playful and eternally-young nature. My enthusiastic girl brought joy to my days, companionship to my nights and smiles to the faces of everyone she met. Together, we learned about dog sports, explored our city and met new people. For hours, she would lie patiently at my feet while I researched how to provide better care for my patients. In time, she welcomed my new husband and stepson to our little

A "HEART DOG" IS A "CANINE SOUL MATE" OR "ONCE IN A LIFETIME DOGS". FOR EACH PERSON WHO HAS **KNOWN AND LOVED A "HEART DOG", A DIFFERENT** SET OF CIRCUMSTANCES, PERSONAL NEEDS AND CANINE CHARACTERISTICS ARE UNIQUELY COMBINED TO PRODUCE THIS SERENDIPITOUS BOND.

was difficult.

#### SAYING GOODBYE

piece

By Dr. Karyn Jones DVM, CCRT, OVC Class of 2001

family with generosity and joy. Lyvie was there when I was sick, when I was tired and when I was sad. She celebrated with me when we purchased our veterinary practice and loved her frequent visits with the team at Ajax Animal Hospital. My dog cuddled with me when mourned the loss of my patients and ensured that I got up to start each day, even when it

After many years, my playful, shining black puppy started to get some grey hairs. Our times playing together had been hard on her joints and she was slower to get up than she used to be. I did everything I knew to make

her more comfortable and she was happy, but I was determined to do more to reduce her osteoarthritis joint and muscle discomfort and for the other special pets in my care as well. After 16 years in practice, I was inspired to go back to school and become certified in Canine Rehabilitation Therapy and my 12-year-old Lyvie was a patient tutor, sharing her body with me as I learned new techniques to improve mobility and relieve osteoarthritis pain. As the time to travel and leave home for the in-class component of my course grew near, I was worried about being away from her for two weeks.

One morning, soon before I was to depart for my course, Lyvie didn't get up to greet me in the morning. She said, "no, thank you" to a cookie for the first time in her life. Her eyes told me that something was wrong. X-rays revealed cancer in Lyvie's lungs. We brought her home, slept together one more time, and in the early hours of the next morning, my friend Dr. Trace MacKay, helped us to let her go. She died in my arms, hearing her family tell her how loved she was and how cherished she will always be.

In his book "Peter Pan", J.M. Barrie said, "Never say goodbye because goodbye means going away and going away means forgetting". So, I didn't say goodbye to my sweet Lyvie-girl. I thanked her for loving me and hoped that my "Peter Pan Heart Dog" took the "second star to the right and straight on 'til morning" to find her way to Neverland.

I needn't have worried about leaving Lyvie at home when I went to my course; she came with me. My beautiful "Heart Dog" is with me as I help rehabilitate my patients and she will forever be a very special piece of my heart. 🧚

# SIX DEGREES OF SEPARATION by Suzi Beber

Suzi Beber founded The Smiling Blue Skies<sup>®</sup> 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.

In June of 1993, I was admitted to a community hospital, for what had been described to me as a routine surgery. Unfortunately, the word "routine" quickly lost its literal meaning, as I developed a number of complications. My weekend in the hospital, turned into nearly two months. Life as I knew it was tucked away in my "memory file." It was a brand new world, a world that I had to learn to participate in one step at a time.

In the spring of 1995, Tommy and I brought a golden bundle of fluff into our home and hearts. His registered name was Teacherspet Smiling Blue Skies, and we had a lot of learning to do. Everyone is familiar with the saying that as one door closes another opens. Blues allowed me to step over the first threshold, and from that day on, we opened many doors together, whether with a scooter, walker, or cane.

Each of us has been touched by cancer. We can try to run and hide, but inevitably, its evil grin will cross the threshold of our homes. It crossed ours in the summer of 2000 and changed our lives forever.

On March 27th, 2001, our beautiful Blues lost his battle with lymphoma. I cried until there were no more tears to be shed, and then I cried again. It has been said that our animals shepherd us through certain times in our lives, and when we are strong enough and ready to turn the corner and make it on our own, they let us go. I was not at all ready, but losing Blues left me with a fierce drive and passion to try to make a difference on behalf of other heart dogs and their owners whose lives have been touched by cancer.

I made a pact, to raise funds for the treatment and research of cancer in companion animals through OVC Pet Trust. Smiling Blue Skies began with \$1,000 and

#### www.smilingblueskies.com

a dream, and though it may have all begun with a Golden Retriever named "Blues," it was really about ALL of us. By the end of the first year, we had raised \$10,000, and now, we are closing in on \$2 million!

Not only do we fund studies and grants, but we also fund the Research Coordinator's position, and assist in the funding of the **OVC Companion Animal Tumour** Sample Bank. None of this would be possible without all of you.

I am so incredibly inspired by all our volunteers, many who I have never met. There are no big backers and sponsors. It is all about you! It is about Sydney's "It's a Rex Thing Lemonade Stand," it's about "Talia's Magnets," it's about Brandilyn's first walk in Muskoka that paved the way to walks across Canada, it's about the "Sasha and the Sashettes" calendars, field training and obedience workshops, agility trials, Tri-Mark Canine Services photo days, special olympics and wellness games, Woof-fit events, and so much more. It is about big and little ideas, dimes and nickels, loonies and toonies, and knowing that every single cent goes exactly where it needs to go, supporting OVC's guest to find more and better ways to understand and deal with the complex and devastating disease of cancer in our companion animals, and in helping them, we are helping ALL of us! Smiling Blue Skies offers 24/7

support to anyone whose life has been touched by cancer. We are all "Kindred

Spirits." Together, we can stretch our wings and soar, reaching beyond the bluest skies and the brightest of stars, to take a bite out of cancer, on behalf of the precious pets and people in our lives. Long live blue skies, where hope is a kite and dreams really do come true.



#### **About Best Friends**

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

#### About OVC Pet Trust

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

#### **OVC Pet Trust Advisorv Board**

Colin Campbell, Rick Hayward, Dr. Doreen Houston (Chair), Dr. Karyn Jones, Kim Lang, Dr. John Reeve-Newson, Dr. Jennifer Ogeer, Dr. Fran Rotondo, Roland Browning Watt, Dr. Jeff Wichtel. Honorary: Roger Warren. Ex-officio: Julie Byczynski, Dr. Gordon Kirby, Dr. Stephanie Nykamp, Kim Robinson.

#### **Editorial Team**

Jane Dawkins, Managing Editor & Design Ashleigh Martyn, Writer Kim Robinson, Managing Director

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

#### **Contact Us**

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University of Guelph Charitable Registration #: 10816 1829 RR 0001

#### www.pettrust.ca

OVC Pet Trust often receives heartfelt thank you letters from pet owners whose veterinarian or friends and family members have made a donation in their pet's memory to OVC Pet Trust at the Ontario Veterinary College (OVC), University of Guelph. Memorial donations help fund OVC research and discovery aimed at helping the pets we love, live longer, healthier lives. If you would like to make a donation in a pet's honour, visit www.pettrust.ca or email: ovcpet@uoguelph.ca.



#### Dear OVC Pet Trust.

Thank you for the letters we received to acknowledge the donations made by family and friends to honour our best friend Niska. Niska was a classic Heinz 57 that we adopted from a farm when she was around five months old. When we arrived at the farm, a medium-sized canine with the longest ears and tail we had ever seen came sprinting toward us. We brought her home, she grew into her ears and tail, and she transitioned from a daily life of cow herding to long walks at Riverside Park and Starkey Hill in Guelph. She never gave up her herding instinct, though, and was keen to make sure her pack stayed together during family walks.

Niska loved long car rides and she faithfully put



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

# PETS IN MEMORY

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

up with years of weekend travel for softball and hockey tournaments. Always a sucker for a good pat on the head and scratch under the chin, being doted on by my teammates sweetened those adventures.

I felt guilty when I "left" home and Niska for university, living 15 minutes away in residence at the University of Guelph. It was while I was a Gryphon that I first got bit by the research bug as a student in Dr. Gordon Kirby's lab at the Ontario Veterinary College, igniting a lifelong passion for biomedical research. While my work is focused on human health, research initiatives supported by OVC Pet Trust play a dual role: improving the lives of companion animals in turn supports the mental and physical well-being of their families.

I left Niska twice more, eventually moving to Hamilton and then Toronto to pursue graduate studies. Thankfully she forgave me each time,

always greeting me warmly at the front door when I'd come home for a visit. With her gentle and calm demeanor, Niska helped my niece and nephew overcome their fear of dogs, creating many warm memories for them as well.

We all miss her dearly, especially my dad who showed her a level of compassion and care that we all would be fortunate to receive in our last months. We think of her every day and cherish the 17 wonderful years of companionship she gave us.

#### Sincerely, Meghan Chenoweth & Family Guelph and Toronto, Ontario

To share your "In Memory" story, please email OVC Pet Trust's Writer, Ashleigh Martyn, at amarty01@uoguelph.ca.

#### **NOW Available OVC Pet Trust: Preparing for the Loss of a Pet**

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

Pet loss support guides for pet owners available in this series: OVC Pet Trust: Preparing for the Loss of a Pet and OVC Pet Trust: Coping with the Loss of a Pet

# #PETTRUSTPALS

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



**Renis PETS Depot** 

- This August Ren's Pets celebrated National Dog Day to raise funds for OVC Pet Trust through their Dogust promotional event. OVC Pet Trust is Ren's Pets National Charity of Choice and the event raised \$17,000. Photo credit: K9 Klub.
- Young OVC Pet Trust supporters: 8-year-old Clarisse who, when she discovered pets can get cancer, wanted to make a difference and started a fundraiser with her family and friends; 6-year-old Ayana



made a donation to OVC Pet Trust instead of having a birthday party this year; and Sydney who operated a lemonade stand to raise funds to help fight canine cancer in memory 6. of her dog Rex.

- 3. This spring the **16th Annual** Smiling Blue Skies Calgary Walk for Canine Cancer raised more than \$26,000. Photo credit: Ellen Kovar.
- U of G student Nicole larusci created and organized **Punk for Paws**, a live concert fundraiser in May 2018 and raised \$1,510.
- 5. University of Guelph students "**Take a Paws**" from exam season with therapy dogs, a bi-annual event

organized by the UofG McLaughlin Library in partnership with St. John Ambulance, the Ontario Veterinary College and OVC Pet Trust. Dr. Doreen Houston, OVC Pet Trust's Board Chair, and Dr. Karol Mathews, OVC Professor Emeritus, organized an informative **Pet First Aid** workshop for pet owners in April 2018 in support of OVC Pet Trust. This event raised \$1,500!



#### UPCOMING Veterinary Industry events

FET TRUCT'S 1,510.00

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

JANUARY 31 – FEBRUARY 2, 2019: Ontario Veterinary Medical Association (OVMA) Conference and Trade Show – Toronto, Ontario. Booth # 113.

FEBRUARY 28 – MARCH 2, 2019: Ontario Association of Veterinary Technicians (OAVT ) 2019 Conference – Niagara Falls, Ontario. Booth #120.

#### CONGRATULATIONS

Congratulations to our OVC Pet Trust Best Friends Reader Survey winner, Nancy B. from Whitehorse, YT. Thank you to all who took part!

#### www.pettrust.ca