SPRING/SUMMER 2019
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UNIVERSITY of GUELPH

Best friends

THE PET MAGAZINE OF THE ONTARIO VETERINARY COLLEGE

IS VEGANISM SAFE FOR PETS?

minutes MATTER...

Protect your pet from heat stroke this summer

Bringing back BEANER

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In photo: Kim Robinson and Dr. Jane Goodall at Ryerson University, April 2019. Photo credit Darren Johnson.

FROM THE DESK OF OUR MANAGING DIRECTOR

This April I had the honour of meeting one of my personal and professional heroes, Dr. Jane Goodall. In 1960, Dr. Goodall travelled to Tanzania to study wild chimpanzees and what she discovered about their behaviour continues to impact the scientific community today. Her ground-breaking field research and observations in Africa not only transformed our understanding of chimpanzees, but it also redefined the relationship between humans and animals. The experience of hearing Dr. Goodall speak reinforced my belief that what keeps our community together is our love for animals and the impact they can have on our lives.

In Dr. Goodall's words, "What you do makes a difference, and you have to decide what kind of difference you want to make." I feel very fortunate in my role at OVC Pet Trust to help make a difference in the lives of pets by working for an organization that supports discovery at the forefront of veterinary medicine.

I am also honoured to help people understand how they can help too.

Best Friends magazine is full of stories that demonstrate the impact of choosing to support OVC Pet Trust. This edition explores hot topics such as: how to protect your pet from heat stroke this summer on page 14, investigating pet owner perceptions of feeding your pet a vegan diet on page 7 and what pet owners need to know about sharing their bed with their pet on page 8.

I am always thankful for the creative and meaningful way people are giving back to the Ontario Veterinary College. Special thanks to VCA Canada for hosting an evening with Jane Goodall in support of OVC Pet Trust on page 5.

Lastly, we are proud to announce that OVC Pet Trust has published a new pet loss resource for helping children cope with the loss of a companion animal, more can be found on page 25. This booklet is part of our series aimed to help pet owners with varying aspects of pet loss and grief. They are available free to read on our website or ask your veterinarian for a print copy.

Whether you have a long history with OVC Pet Trust or reading *Best Friends* for the very first time, thank you for your interest and commitment to improve and advance companion animal health.

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

ABOUT OVC PET TRUST

OVC Pet Trust, founded in 1986 at the Ontario Veterinary College (OVC), University of Guelph, is Canada's first charitable fund dedicated to 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, 3rd in North America and 7th in the world for veterinary science amongst veterinary schools worldwide.

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

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Cover image: Patient Beaner. Photo credit: Ashleigh Martyn.

IN THIS ISSUE:

the POOP SCOOP

How fecal transplants have the potential to treat disease in dogs.

Medical science has entered the era of the microbiome. The microbiome is a part of all living species and it is made up of microbes, bacteria, viruses, fungi and other microorganisms that live inside the body and help keep us healthy. The importance of gut health – how we ingest, digest and expel the food we put in our systems – is not just relevant in human medicine; veterinary specialists worldwide are also tackling the subject, including researchers at the University of Guelph's Ontario Veterinary College (OVC).

Dr. Shauna Blois, a board-certified internal medicine specialist, says we still have a lot to learn about how the microbiome interacts with states of health and disease in the body. Interest in the scientific community is developing at a rapid rate to determine links between disease and the body's microbiome.

"Research tells us that a wide number of conditions, such as various gastrointestinal (GI) diseases and obesity, are associated with changes in the microbiome," says Blois. "Right now, there is little known to scientifically determine if these alterations in the microbiome play a role in causing disease or illness or if adjusting cells in the body could serve as a possible treatment option."

That's where stool transplants come into play in Blois' work. Typically referred to as fecal microbiota transplants (FMT) in the medical community, Blois explains the procedure as transplanting feces from a healthy donor into the GI tract of the patient with the goal to replenish "good" bacteria in the body's system. FMT is commonly known for its use in human medicine, particularly as a treatment for people affected by *Clostridium difficile*, or *C.difficile,* infections.

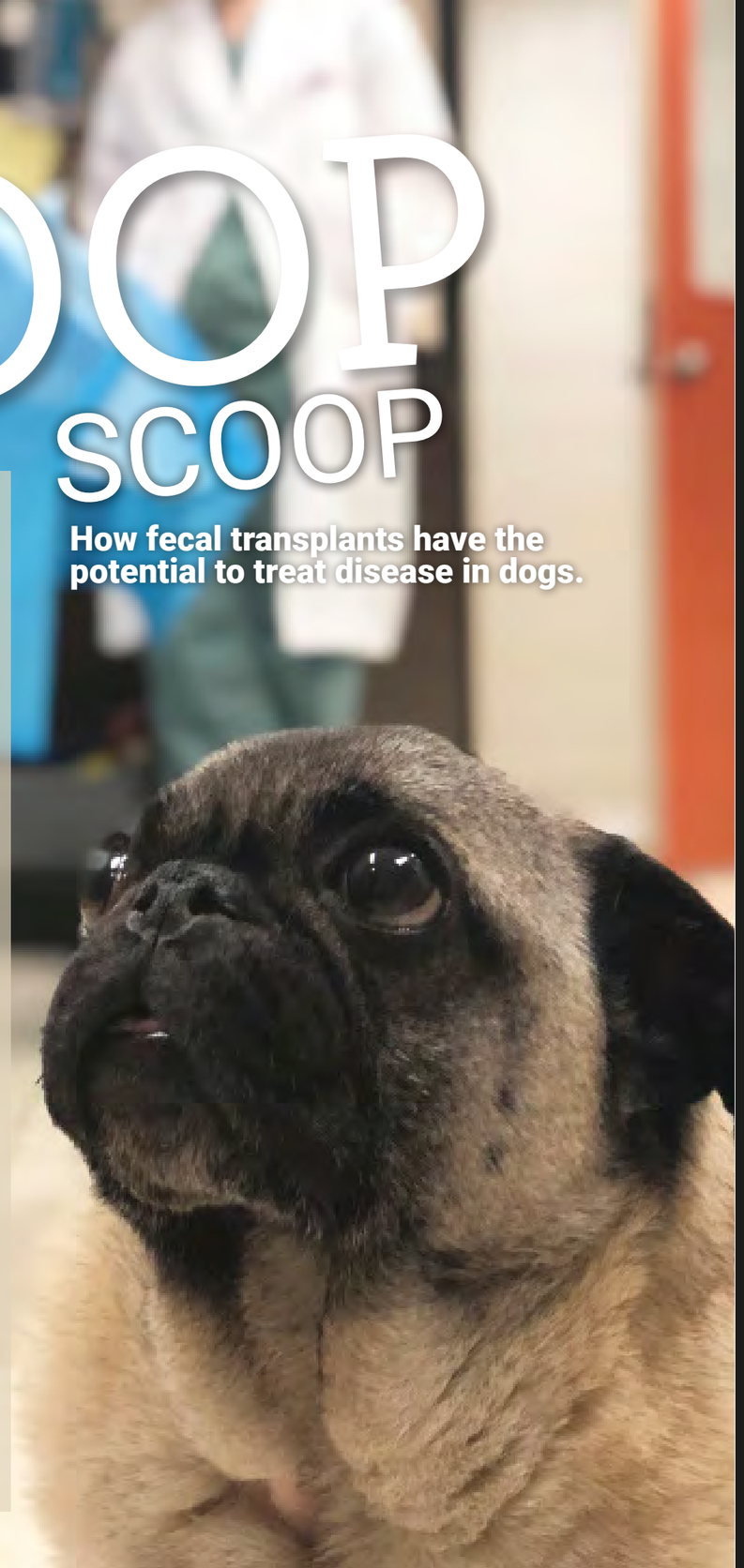


Photo credit: Jane Dawkins.

Blois is currently investigating FMT in veterinary patients specifically as part of the treatment for dogs with inflammatory bowel disease (IBD). IBD happens when the immune system attacks the intestines, causing inflammation. It may occur due to multiple factors: genetics, inflammatory triggers in the diet or environment, interactions between the GI tract and normal microbes and changes in the immune system. While IBD includes a broad category of chronic GI inflammation, it is found in dogs, cats, humans and many other species. In this study, Blois along with Dr. Scott Weese and OVC Doctor of Veterinary Science (DVSc) student Allison Collier, are measuring the clinical response to FMT in patients that medically qualify as potential candidates and have a pre-existing IBD condition. Pet patient participation is based on owner consent.

"There are a lot of similarities in the way FMT is used in human and veterinary medicine. Donor selection is similar; much like human donors, animal fecal donors are screened extensively to make sure they are healthy and qualify to donate," Blois explains. Goals are also very similar to human medicine. "The idea behind FMT is that the 'good' microbes found in feces from a healthy donor will start to establish themselves in the sick patient's GI tract and normalize the fecal microbe community again," she says.

Blois believes OVC is among the first team of researchers to investigate FMT for dogs in a clinical trial for IBD. She is hopeful her work can translate into new treatment options for dog patients. Findings could translate to benefit human health as well.

Depending on the findings, Blois hopes FMT could be the primary treatment for some IBD pet patients, reducing the need for current standard drug therapies which can have severe side effects in patients. If dogs can respond favourably to FMT alone it may eventually help avoid other therapies altogether.

Blois is also currently conducting two related studies that are examining fecal matter. One project investigates the impacts of surgery on the fecal microbiome of dogs and the other explores social impacts, such as housing and environmental conditions, and how they may have an effect on a dog's fecal microbiome health. Future work is also planned to study microbiome alterations in non-GI diseases such as immune-mediated blood disorders.

"In people and pets, the microbiome includes trillions of bacteria that work together to keep us in optimal health. A healthy gut is the foundation of good health, so the more we can learn about changes in the gut that may cause disease, the better we can treat or prevent those conditions from occurring in the first place," Blois says.

Photo credit: Ryan Emberley

OVC PET TRUST WALK IN THE PARK GALA RAISES $5-MILLION

Animal lovers and philanthropists announced a record-breaking $4,944,680 million in donations at the fourth OVC Pet Trust Walk in the Park Gala on October 1, 2018. During the event, a gift of more than $4 million was announced from the estate of the late Catherine Bergeron. A subsequent donation brought the total to $5 million. The event attracted 250 people to Daniels Spectrum in Toronto. Funds raised will be used to support companion animal emergency medicine and critical care through the expansion of the Intensive Care Unit at OVC. The Gala was co-chaired by long-time health care philanthropist Emmanuelle Gattuso and OVC Pet Trust board member, Roly Browning Watt. The evening was emceed by Paul Sun-Hyung Lee, star of the Canadian comedy television series *Kim's Convenience*.

Photo credit: Bloomberg / Getty Images

VCA HOSTS AN EVENING WITH JANE GOODALL IN SUPPORT OF OVC PET TRUST

This spring VCA Canada hosted an evening in conversation with Jane Goodall at Ryerson University in Toronto, with all net proceeds being donated to OVC Pet Trust. Equipped with little more than a notebook, binoculars and a passionate interest in wildlife, Jane Goodall ventured into the forests of Tanzania nearly 60 years ago to begin her ground-breaking research on chimpanzees. Goodall spoke to a sold-out audience about the threats facing chimpanzees and environmental crises, urging everyone to take action on behalf of all living creatures and the planet we share.

FAMOUS PIG INSPIRES DONATIONS TO EXPAND OVC DIAGNOSTIC SERVICES

Esther the Wonder Pig, a 650-pound social media phenomenon, had fallen mysteriously ill and needed advanced imaging to arrive at an accurate diagnosis. Steve Jenkins and Derek Walter launched a campaign to equip OVC with a CT scanner large enough to accommodate her. With 11,000 donors from 57 countries, their Happily Ever Esther Farm Sanctuary raised $650,000 in a few months. Now, Esther has her diagnosis and OVC is the first veterinary hospital in Canada to offer this type of advanced diagnostic service to large animals. Dr. Stephanie Nykamp, OVC's associate dean, clinical programs, says the new machine will fill a gap in large animal health care not only at OVC but also across Canada.

Photo credit: Jane Dawkins

GETTING TO KNOW...
ALEXANDER VALVERDE

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

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

My interest in veterinary medicine first developed because of my love for animals, and then, as I better understood the impact veterinarians have, I became more aware of how my actions could positively impact the well-being of animals in general.

Anesthesiology is a special field. The life of each animal I deal with is in my hands, each one becomes my responsibility and I look after them to keep them in the best possible condition for the procedure being carried out in hospital.

The first veterinary anesthesiologist I ever met while I was a veterinary student made an impression on me: he was in complete harmony with the bull he was keeping under general anesthesia, while many events were occurring around that animal – surgery in its abdomen and conversations amongst the care team. The anesthesiologist is completely devoted to their patient. The job of an anesthesiologist is to prevent and control any event that could jeopardize an animal's well-being, while being attentive to the surroundings and needs of others in that operating room. This moment was revealing for me. I decided then, this was going to be my goal.

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

OVC Pet Trust has been very important during my academic career. My graduate project when I was a Doctor of Veterinary Science (DVSc) student was funded by OVC Pet Trust in 1987. I understood then the importance and relevance of OVC Pet Trust, especially for newcomers (students) to be able to achieve a small contribution to the profession as well as accomplish an individual milestone. As faculty, I've had multiple projects funded by OVC Pet Trust. With this funding I've also been able to incorporate graduate students into my research and allow for them to follow the steps I once took early in my career.

What research projects are you currently working on?

Dexmedetomidine is a popular sedative and analgesic used in small animals. One effect from this drug that is often considered adverse is the bradycardia (decrease in heart rate) that occurs after its administration. The use of another drug, lidocaine, to treat dexmedetomidine's bradycardia was first recommended by our team at OVC from our observations on the use of lidocaine to provide intraoperative analgesia. This allowed us to notice that in dogs that had received dexmedetomidine, the slow heart rate could be increased to an acceptable rate without affecting the blood pressure and therefore, without compromising the work of the heart and blood supply to the tissues. We have recently completed an investigation confirming our observations and results. This is an exciting and novel way of dealing with the slow heart rate caused by dexmedetomidine, which makes the use of this sedative safer and allows veterinarians to deal with its main adverse effect in their pet patients.

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

Procedures that were rarely done in the past are now routine, but the older infrastructure of our hospital facilities does not have all the conditions to always carry them out in an efficient manner. New facilities will give us the opportunity to complete our daily activities in a setting that is modern and adapted to the current needs to treat our patients.

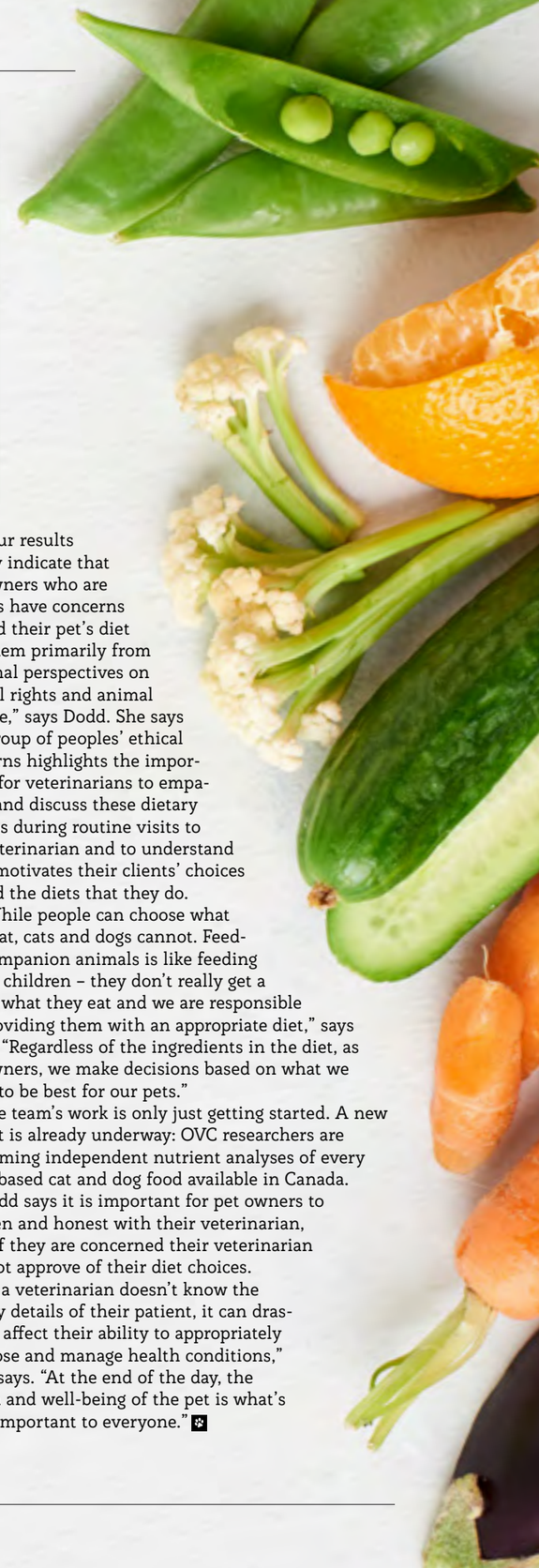
Do you own any animals yourself?

I don't currently have a pet at home, but I have had animals all my life: dogs, fish, birds, horses, chickens, turkeys, and in past years a cat. I have two reasons why I don't have a buddy presently. As I grew older, my attachment to my pets became stronger and I feel they are irreplaceable. The other reason is that I have a busy schedule that prevents me from looking after a new buddy the way I feel I should, so I resist. ❦

Photo credit: Jane Dawkins.

IS VEGANISM SAFE FOR PETS?

Investigating pet owner perceptions of plant-based diets for dogs and cats.



Research shows there may be serious health risks of feeding your cat or dog unconventional diets, but with veganism on the rise in people around the world, plant-based alternatives for pets has become a hot topic.

In North America veterinarians follow nutritional feeding guidelines for pets established by the Association of American Feed Control Officials (AAFCO). Based on current knowledge in veterinary medicine, nutritionists recognize nutrients, not ingredients in an animal's diet. As long as a diet provides all of the essential nutrients in the appropriate amounts and ratios, it would be considered nutritionally adequate. However, according to most veterinarians who specialize in nutrition, while a diet without animal ingredients may be formulated to meet AAFCO nutrient profiles, there is little research regarding the way these diets perform when fed to the animals they are intended for.

Generally, strictly plant-based diets are considered unconventional for dogs – canines are omnivores, or animals who can eat and survive on both plants and animals. Cats are carnivores and as recently as fall 2018 it was reported in *The Telegraph* that The Royal SPCA stated that cats could become seriously ill if given exclusively plant-based diets and owners could run the risk of getting a criminal record: "Under the [British] Animal Welfare Act, the law requires an owner to take reasonable steps to ensure that all the pet's needs are met. This includes a healthy diet, as well as providing suitable living conditions, ability to behave normally, appropriate company and protection from pain, suffering, injury and disease." In the worst cases where cats are so malnourished, guidelines say owners could face a hefty fine or even a jail sentence if convicted under the Animal Welfare Act.

In a new study led by board-certified veterinary nutritionist Dr. Adronie Verbrugghe at the Ontario Veterinary College (OVC) at the University of Guelph, researchers asked pet owners to share their pet feeding practices, motivations and concerns when it came to their pet(s)'s diet. Dr. Sarah Dodd, Verbrugghe's PhD student and a licenced veterinarian herself, guided the study. Findings showed that pet owners who have chosen a vegan lifestyle for themselves, in particular, are very highly motivated to investigate feeding plant-based diets to their pets.

"Our results clearly indicate that pet owners who are vegans have concerns around their pet's diet that stem primarily from personal perspectives on animal rights and animal welfare," says Dodd. She says this group of peoples' ethical concerns highlights the importance for veterinarians to empathize and discuss these dietary choices during routine visits to the veterinarian and to understand what motivates their clients' choices to feed the diets that they do.

"While people can choose what they eat, cats and dogs cannot. Feeding companion animals is like feeding young children – they don't really get a say in what they eat and we are responsible for providing them with an appropriate diet," says Dodd. "Regardless of the ingredients in the diet, as pet owners, we make decisions based on what we deem to be best for our pets."

The team's work is only just getting started. A new project is already underway: OVC researchers are performing independent nutrient analyses of every plant-based cat and dog food available in Canada.

Dodd says it is important for pet owners to be open and honest with their veterinarian, even if they are concerned their veterinarian will not approve of their diet choices.

"If a veterinarian doesn't know the dietary details of their patient, it can drastically affect their ability to appropriately diagnose and manage health conditions," Dodd says. "At the end of the day, the health and well-being of the pet is what's most important to everyone." ❦

Photo credit: istock.com/warrenpdswain

UNCOVERED

What pet owners need to know about sharing a bed with a pet

ZOONOTIC
(*zoo-en-nah-tick*) diseases, also known as zoonoses, are caused by infectious diseases that are shared between animals and people. Major modern diseases such as Ebola virus disease and salmonellosis are zoonoses.

Photo credit: istock.com/michellegibson

According to the Centers for Disease Control and Prevention (CDC) it is estimated that approximately 50 per cent of pet owners share their bed with their pet. If you are in this group of pet owners, you've likely experienced the mental and emotional benefits of sharing this space in the home with your dog or cat firsthand. Pets provide comfort and a sense of security to many. But have you ever thought about the implications of welcoming a pet under the covers from a health and infectious disease perspective? Is it safe? Are there negative consequences? Are precautions necessary? Do the benefits outweigh the risks?

While sharing your bed with a pet is generally quite acceptable, there are some risks and potential dangers pet owners should understand. We sat down with Ontario Veterinary College (OVC) infectious disease expert and professor Dr. Scott Weese to learn what all pet owners should know about sharing such close quarters with a dog or a cat in the home.

"There is never a 'no risk' situation. I can't ever say that your dog or cat won't make you sick," says Weese, who specializes in understanding zoonotic diseases, infectious diseases that can be transferred between animals and people. "But, the overall risks are very low, especially with dogs and cats, and healthy owners. The challenge with educating people about zoonotic disease involves walking the line between raising awareness and talking people off the ledge at the same time."

Pathogens and parasites can be bad, but they are also critical for our immune system, the body's protector which is made up of cells, tissues and organs that work together to fight infectious organisms.

"It's all about lessening risk," Weese states. "There are a number of risks pet owners can easily manage on their own: ideally, pets in the household receive regular preventive veterinary care; everyone in the home uses good handwashing practices; pets are fed properly; and when disease arises, it is medically treated. Whether we share our bed, home or life in general with a pet, we are talking about the same sanitary concepts and habits," Weese says.

WHAT TO CONSIDER WHEN INVITING A PET INTO YOUR BED

LIFE STAGE OF YOUR PET

Generally, dogs and cats are lower risk pets. However, puppies can be higher risk than an adult dog because they are more likely to shed parasites and certain bacteria. Puppies are also known to bite and scratch more often.

THE SPECIES

When bringing an exotic pet into the home, pet owners should be made aware that some species are prone to carrying certain diseases. Reptiles such as turtles, snakes and lizards frequently carry *Salmonella* and are known to be much higher risk pets.

YOUR AGE AND YOUR HEALTH MATTER

"Just like animals, there are groups of people who are higher risk too. Children younger than five, adults over the age of 65, pregnant women and people with weakened immune systems (immunocompromised) are in the high-risk category. People who are undergoing chemotherapy or bone marrow transplant recipients are exceptionally high-risk," says Weese. However, 'high risk' doesn't mean people shouldn't own or have contact with pets. It means the risks need to be evaluated and measures taken to reduce those risks.

WHAT ABOUT UNDER THE COVERS?

It is important to note that on the bed and in the bed (underneath the covers) are two different things, especially when you consider the following scenarios provided by Weese. What is the risk of a healthy 20-year-old sharing their bed with their dog? Probably close to zero. In comparison, what is the risk of an 85-year-old diabetic patient with foot ulcers doing the same? There is likely higher risk in this situation, especially if the pet sleeps under the covers at the person's feet. Close contact for six to ten hours a night under the covers together could result in a problem for the pet owner or for the dog.

COULD YOU BE THE ONE MAKING YOUR PET SICK?

It goes both ways. "We focus on bugs that go from animals to people, and that's important. However, things go both ways. In particular, we see antibiotic resistant bacteria moving from people to their pets. People with infections or that are higher risk of carrying certain pathogens (such as resistant bacteria) should take measures to reduce the risk to their pets, such as handwashing."

WHAT ARE THE MAIN HEALTH CONCERNS WHEN SHARING A BED WITH A PET?

"Odds of an infection are low overall, but transmission of bacteria during close, prolonged contact is always of some concern," Weese explains. "Infection is more likely in people who have wounds, any type of skin lesion, surgical incision or foot ulcer, in addition to people who are generally in a high-risk category due to their age or medical status," he adds. If the dog is in a similar category or has an active infection such as a skin infection, the risks probably increase further. Each situation should be assessed on a case-by-case basis, Weese recommends.

Pet owners should engage both their physicians and veterinarians in the conversation if they have concerns. Weese's research has shown that physicians may not always ask patients about pets in the home and veterinarians may not necessarily be comfortable discussing human health topics, which further drives home the need for owner education.

"With education and awareness, we can greatly reduce risks so that the benefits of pet ownership outweigh the costs," Weese says.

For more information visit www.wormsandgermsblog.com.

YOUTH IN ACTION
Punk for Paws

According to Imagine Canada, 13 million Canadians volunteer talent and time to support non-profits and charities and help those in need. Collectively, Canadians give more than $14 billion annually to registered charities. Top youth experiences that motivate future giving include seeing parents volunteer, seeing someone they admire helping others and volunteering.

In 2018 second year University of Guelph (U of G) student Nicole Iarusci had a big idea: to combine her passion for music and animals together to celebrate the positive effects both have in peoples' lives.

And so, what was once a brainstormed idea in one of Iarusci's notebooks became Punk for Paws, a live concert fundraiser, featuring local bands from Southern Ontario, with all proceeds supporting OVC Pet Trust. In May 2018 Iarusci held her first event at rock concert hall Lee's Palace in The Annex neighbourhood in Toronto. Iarusci says it means a lot to her that she can use her passion for music to give back and to help animals.

While Punk for Paws stemmed from her own idea, Iarusci recognizes it takes a team to execute the vision into reality. She credits her support system of friends and family who have encouraged her, as well as the musical artists who play for her fundraiser event.

"Punk for Paws is our combined achievement."

Iarusci feels strongly that music has the power to bring people together.

"Music fans commonly connect through the therapeutic, cathartic and comforting environment of live music. It [music] allows people to experience a form of escapism and helps motivate them to live in the moment," Iarusci reflects. "These same positive effects can similarly be experienced through owning a pet: a pet offers unconditional love and is a source of comfort and companionship. Animals live in the moment and remind their owners to do the same," she adds.

Iarusci was motivated to give back to OVC Pet Trust because the cause is close to her heart as a pet owner and as an aspiring veterinarian. She appreciates that veterinary care is key for our pets to be able to live long and healthy lives with the people who love them.

"OVC Pet Trust supports incredible, ground-breaking research to make advancements in the field of veterinary medicine, which in turn continuously improves the quality of care our pets can receive from their veterinarian. They also support the human-animal bond – something many of us are lucky to experience."

Iarusci can't remember a time in her life when her family did not share their home with a pet. She says being surrounded by pets throughout her childhood contributed to a lifelong love for them. This year's Punk for Paws will be particularly meaningful for Iarusci, who recently lost one of her own pets – Tiny Rick, a domestic shorthair cat. "Tiny Rick was able to live a great life due to the veterinary care he received." She adds that by supporting OVC Pet Trust, her efforts are supporting the lives of other pets that make people just as happy as Tiny Rick made her and her family.

"Being able to support the unique bond shared between an owner and their pet is a very powerful, moving thing."

a day in the life of a
Medical Oncology Resident

Dr. Chris Pinard (OVC 2016) is a licenced veterinarian who is studying to become a veterinary specialist. He is currently pursuing a three-year Doctor of Veterinary Science (DVSc) degree and simultaneously pursuing a clinical residency training program in medical oncology – a branch of medicine that deals with the diagnosis and treatment of cancer in pets. His advanced specialty training includes both clinical duties and research work. Today he is on clinics at the Mona Campbell Centre for Animal Cancer in the OVC Health Sciences Centre, a specialty referral hospital and the first comprehensive centre of its kind in Canada, helping pets and their owners. Each day on clinics Pinard diagnoses, treats and fights alongside his patients in their own respective battles with cancer. Every year the centre has more than 5,000 patient visits, with owners traveling with their pets to Guelph from across Canada and from around the world to receive advanced cancer care. Our writer went behind-the-scenes with Pinard and his team to get a glimpse into the hopeful and compassionate world of veterinary medical oncology.

MORNING

Today, before patients arrive at the University of Guelph's Ontario Veterinary College (OVC), the medical oncology team meets for journal club. The goal of this weekly session is to bring newly-published research – the latest knowledge and innovation in cancer research from around the world – directly to the clinic floor at OVC. Each doctor reviews the findings from their respectively assigned research paper – this morning, Drs. Sarah Laliberté, oncology intern, and Sam Hocker, board-certified medical oncologist, are presenting studies from academic institutions in Italy and the United States. The team has discussions about the implications and applications of the findings within each paper and review how their current or future patients may benefit or be impacted by the literature. Journal club helps trainees and specialists stay up-to-date and at the forefront of cancer treatments; it is also an important requirement within the board certification process and a key component in Pinard's training to become a medical oncology specialist.

OVC's oncology team is made up of faculty and veterinary specialists; residents and interns; a surgical oncologist; a

Story photos by Ashleigh Martyn.

radiation oncologist; registered veterinary technicians (RVTs); and a clinical counsellor. The centre is also home to the Companion Animal Tumour Bank, a unique resource that houses thousands of cancer tumour and blood samples that are available to the scientific community for future cancer research. When Pinard talks to pet owners, he explains the various team members, who, even though they may not meet personally, are all operating behind-the-scenes.

"Cancer can be a scary subject," says Pinard. "I believe it is important to explain what cancer care looks like at OVC and in veterinary medicine. It is our responsibility to explain the combined expertise and collaborative approach, all aimed to deliver the best possible care for every pet that comes through our doors."

After journal club, the team rounds at the central white board, reviewing all patients' history and treatment plans before the day gets underway. Today, twenty patients in total, mostly dogs and one cat, are scheduled to visit the cancer centre, a pretty typical day. Some patients are in remission; others have relapsed or taken a turn for the worst. This morning, Chris will see three new patients who are visiting the cancer centre for the very first time and check in with six returning patients who are here for their chemotherapy treatments. His patients are battling different types of cancer with varying prognoses, or chances of survival, including lymphoma, mast cell tumours, hemangiosarcoma, osteosarcoma and more.

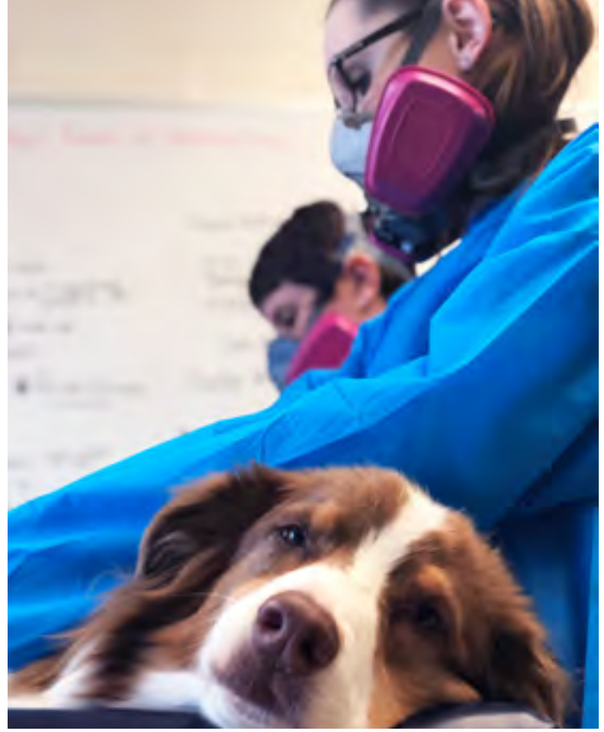
Morning appointments begin at 9 a.m., with a flurry of dogs arriving to be set up for their treatments. RVTs bring dogs Radar, Cassie and Bailey into the treatment room, and like all patients who are visiting the cancer centre, they will undergo pre-treatment physical exams as well as spend a short time after their therapies under the supervision of the veterinary team.

As Pinard performs a physical exam on Radar, an eight-year-old Australian Shepherd with lymphoma who is here for his chemotherapy treatment, he explains the importance of thoroughly examining each patient prior to their treatment. "Depending on the cancer type, a physical examination can tell us how a patient is responding to chemotherapy; this is especially true in dogs with lymphoma. In others, it is vital that they maintain their health and quality of life through this process."

Pinard and his team are gifted communicators. "My goal is to make sure our patient's families have all the information they need to make an educated and informed decision for their pet. For many patients, there is a lot we can offer that will help maintain a very good quality of life," Pinard explains. "I want our clients to understand the gold standard of care that is available to their pet here at OVC."

In consultation with the team of board-certified specialists, Pinard acts as a guide for his patients: that may mean navigating the road to a definitive diagnosis of what the pet is facing; developing a personalized treatment plan; and explaining all of the risks, benefits and considerations that come along with battling a life-altering disease. In the end, some owners decide to pursue all of Pinard's recommendations. Others, for many reasons, may choose not to.

Some of the questions pet owners have when they learn their pet has cancer are: "How long does my pet have to live?" and "What would you do if it was your pet?" Pinard draws from his own experiences and what originally inspired him to study the field of veterinary oncology: in his second year of veterinary school, he lost his beloved dog, Jude, to a nasal tumour. Pinard very openly explains to his clients there is no right or wrong when it comes to making their decision, keeping quality of life for their pet, financial, emotional and personal factors in mind. Through this morning's appointments, he constantly reminds owners that their quality of life matters as well as that of their pet. "We know that these amazing families want the best for the pet they love. It is our job to offer everything that is medically and reasonably available for that patient to help an animal fight cancer and help owners make the decision that is best for them – sometimes this may involve treatment or other times it may not," Pinard says.



AFTERNOON

Frank, an eight-year-old Bernese Mountain Dog, greets Pinard in the waiting room. Frank is a new patient and has a suspected soft tissue sarcoma, a broad term for cancers that start in the muscle, nerves and other connective tissues. As like with all new patients who come to the animal cancer centre, he has been referred by his family veterinarian. Three returning dog patients – Zinfandal, Molly and Zimba – have also arrived for their chemotherapy appointments. Much like the morning, there is a whirlwind of activity. Team members meet with pet owners to find out how patients are doing back at home between therapy sessions. Pinard conducts their physical exams and blood samples are collected. Once test results arrive back from the Animal Health Lab, if the bloodwork shows that their white, red and clotting cell (platelets) counts are within normal range, he authorizes scheduled therapies.

"In veterinary oncology, our ultimate goal is to increase the quality of life for each individual patient," Pinard explains.

Depending on the type and severity of cancer, treatment options may include surgery, chemotherapy, radiation therapy or a combination thereof. Frank's owners decide to do anything and everything they can to help their dog battle his cancer diagnosis. Next steps for Frank will involve scheduling diagnostic imaging tests later in the week to get a clear picture of how far or even if the cancer has spread in his body before targeted treatment can begin.

Once all new patients have been treated for the day, rounds begin again for the entire team. Afternoon rounds involve each intern, resident and specialist summarizing their day for all of the patients they have met or treated.

EVENING

While each day is different, after all of his patients have gone home or if any have been transferred to OVC's intensive care unit (ICU) for the evening for around-the-clock monitoring, it's time for paperwork, phone calls and scheduling. A typical evening for Pinard involves completing patient medical records; phone calls to owners and referring veterinarians to provide updates; and finding the next available day and time to schedule tests, procedures and therapies for his patients.

The days can be long, but Pinard is grateful for the opportunity to train at a world-class veterinary school and expand his knowledge in the field he's so passionate about. "The more I learn, the more I can help my patients. At the end of the day, that's what I am here for. It's a great feeling to learn from and be part of such an amazing team."

In photos: Oncology Intern Dr. Sarah Laliberté and Resident Dr. Chris Pinard examine Joey, a Golden Retriever battling brain cancer, who is undergoing radiation therapy, page 11.

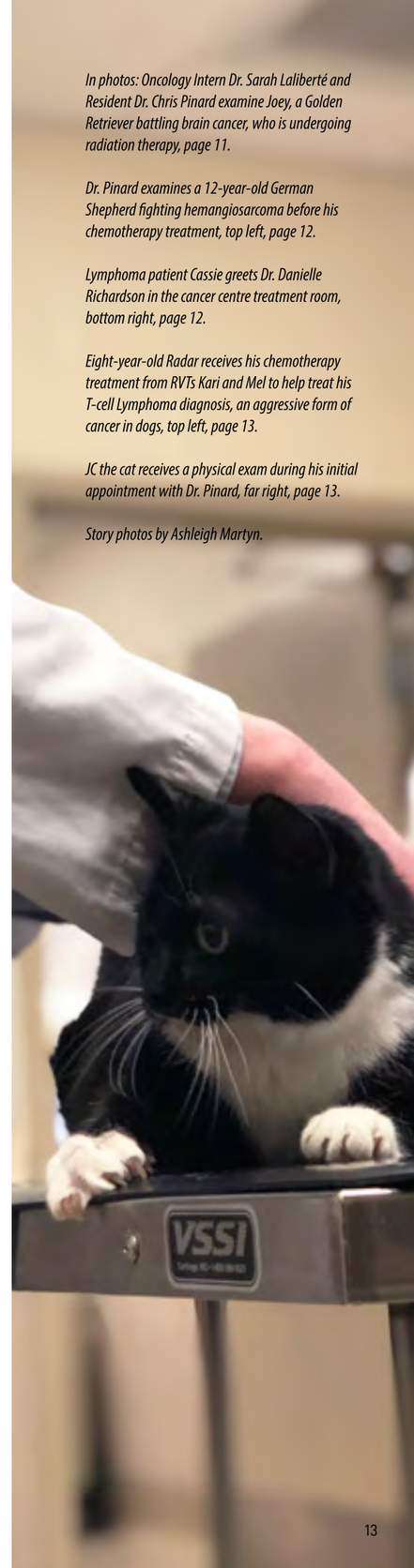
Dr. Pinard examines a 12-year-old German Shepherd fighting hemangiosarcoma before his chemotherapy treatment, top left, page 12.

Lymphoma patient Cassie greets Dr. Danielle Richardson in the cancer centre treatment room, bottom right, page 12.

Eight-year-old Radar receives his chemotherapy treatment from RVTs Kari and Mel to help treat his T-cell Lymphoma diagnosis, an aggressive form of cancer in dogs, top left, page 13.

JC the cat receives a physical exam during his initial appointment with Dr. Pinard, far right, page 13.

Story photos by Ashleigh Martyn.



minutes MATTER...

Protect your pet from heat stroke this summer

Each year SPCAs across Canada receive hundreds of reports of pets being left in hot cars. It takes mere minutes for a hot environment to become life-threatening for an animal. For dogs in particular, a rise in temperature can very quickly lead to a medical emergency. Humans have sweat glands, but our canine counterparts have very few and only on their paws, making it difficult or even impossible for dogs to regulate their body temperature in rapidly changing environments.

Owner education is key as many people are not aware of how fast heat stroke can develop and the short amount of time it takes for a dog's body to go into shock. The consequence of heat stroke can often be fatal. We sat down with OVC veterinary criticalist Dr. Shane Bateman to find out what heat stroke is and how owners can protect their pets this summer.

Photo credit: istock.com/ hatuhan_toker.

What is heat stroke and how is it caused?

Heat stroke is a term commonly used for hyperthermia or elevated body temperature and occurs when a pet can no longer cool down its own body. All warm-blooded animals that regulate their body temperature can be affected. A temperature above 103°F/39.4°C is considered abnormal; organ failure and death occur around 107°F-109°F (41.2°C-42.7°C). Heat stroke is much more common in dogs than cats, but can affect both species. The most common cause of heat stroke is leaving a dog in a car with insufficient ventilation.

Why is heat stroke a medical emergency?

Dogs cannot control their body temperature by sweating like people do since they only have a small number of sweat glands located in their footpads and their primary way of regulating body temperature is by panting. It often only takes minutes for a dog's body temperature to rapidly increase. Flat-faced breeds of dogs such as pugs, boxers and bulldogs genetically have a restricted airway and are at greater risk for developing heat stroke. In these breeds, heat stroke can occur even when the outside temperature is only moderately elevated. Signs of heat stroke include panting and lethargy, difficulty breathing, vomiting, diarrhea, weakness or inability to stand and reduced responsiveness progressing to loss of consciousness and even seizures. Permanent organ damage and death is possible.

What exactly happens to a dog's body when they experience heat stroke?

Hot conditions can prevent dogs from being able to regulate their own body temperature. It only takes minutes on a warm day for the air inside a car to become very hot. When dogs pant in a hot environment, they inhale that hot air directly into their lungs which causes their temperature to spike. When this occurs, protein structures in the body begin to fail. The linings of blood vessels are now damaged, which can cause blood clots in tissues throughout the body. Like humans, dogs require oxygen to their heart, liver, kidneys and more – these organs all start to fail from a lack of oxygen in the body, causing the dog to vomit or have diarrhea. The brain will then quickly become damaged, which may cause the dog to go into shock, produce seizures or even a coma, followed by death.

Is heat stroke preventable?

Yes, heat stroke is preventable! Each year during the spring, summer and fall, the OVC Companion Animal Hospital treats five to 10 pets with heat stroke. Unfortunately, sometimes the outcomes are tragic. Pet owners can prevent heat stroke by never allowing their animal to remain in a car that is not air conditioned, cool and running. Better yet – leave them at home; and avoid exercising their pet during the hottest times of the day. If you exercise with your pet outside, shift the time to cooler parts of the day such as early morning or late evening. On warmer days, resist the urge to go further than typical and actively reduce the amount of exercise on such days; ensure that pets have a cool or air-conditioned space in your home that they can escape to when needed.

On the very hottest days, most people are aware enough to avoid the major risk factors. Unfortunately, pet owners sometimes follow their urges on the first warm day in the spring, or a sudden warm spell in the fall, to be outside with their pet. Often pets have not acclimated to the change in weather or the change in activity level and can develop heat stroke in such conditions. Always be cautious and limit exposure and gradually allow pets to build up more of a tolerance to heat and exercise under such conditions.

What should owners do if they suspect their pet has heat stroke?

While heat stroke is an urgent medical emergency and the pet should be taken to a veterinarian for immediate attention, there are some basic things pet owners can do to provide safe and controlled reduction of body temperature: get the pet into a cool, air-conditioned space as soon as possible; offer a cold drink of water; use wet towels or blankets to soak your pet's fur quickly and allow them to be in front of a fan blowing cool air; transport the pet to the nearest veterinary facility. If the patient is severely affected, the veterinary team can arrange a referral to an emergency hospital such as OVC when safe to do so.

What can pet owners do to feel prepared to deal with medical emergencies involving their pet (heat stroke or otherwise)?

Educate themselves on common risks and avoid them. Always be aware where the closest veterinary care is, or utilize telemedicine services to assist in triage and initial assessment and advice. Have some basic first aid elements at home or travel with them. Peroxide (fresh, not expired, unopened), clean towels / bandages, elastic bandage and a blanket large enough to help transport a pet if needed.

Photo credit: Ashleigh Martyn.

Bringing back BEANER

"It's a situation we wouldn't wish on anyone, but unless a person has been in the terrible position of almost losing their pet, they can't fully grasp what it's like to go from hopeless to hopeful and the emotions that come with it."

It was Christmas morning in 2018 and while most people were heading out to family functions, Tanya Prospero and Rick Anodal were making their way to the Ontario Veterinary College (OVC) at the University of Guelph to visit their seven-year-old mini Shar Pei, Beaner, who had been hospitalized the day before.

Beaner's condition had suddenly deteriorated when he became unable to walk without collapsing, appeared to be paralyzed and refused to eat or drink. Since it was Christmas Eve and most veterinary hospitals were booked up or closed for the holidays, their family veterinarian referred Beaner to a local emergency clinic. When it became obvious that Beaner may have been suffering from a bacterial or a neurological condition, it was recommended that their best course of action was to take their dog to Guelph. Frustrated that they were left with more questions, no answers and terrified that another car ride could do more damage if their dog had a back or spinal cord injury, Beaner's family got into their car and started driving to OVC's Companion Animal Hospital.

"What we didn't realize at the time was that taking Beaner to OVC was going to save his life," Tanya says.

Between tears, Tanya and Rick did their best to explain what had happened to the veterinary team that welcomed the couple and Beaner upon arrival.

Tests were run and a CT scan confirmed his diagnosis: intervertebral disc disease (IVDD), a condition where the cushioning discs between the spinal column either bulge or burst into the spinal cord space, causing painful clinical signs in dogs. Beaner needed immediate surgery and there were no guarantees that he would ever be able to walk again. Understanding the unknowns, the family moved forward with the operation – a procedure called a ventral slot surgery was performed with the goal of repairing the herniated disc between Beaner's C2 and C3 vertebrae.

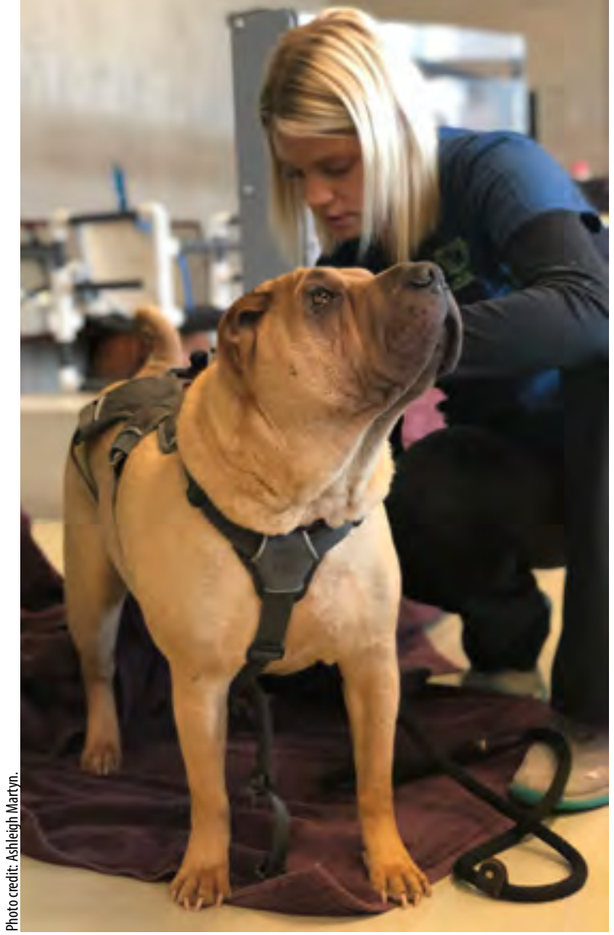


Photo credit: Ashleigh Martyn.

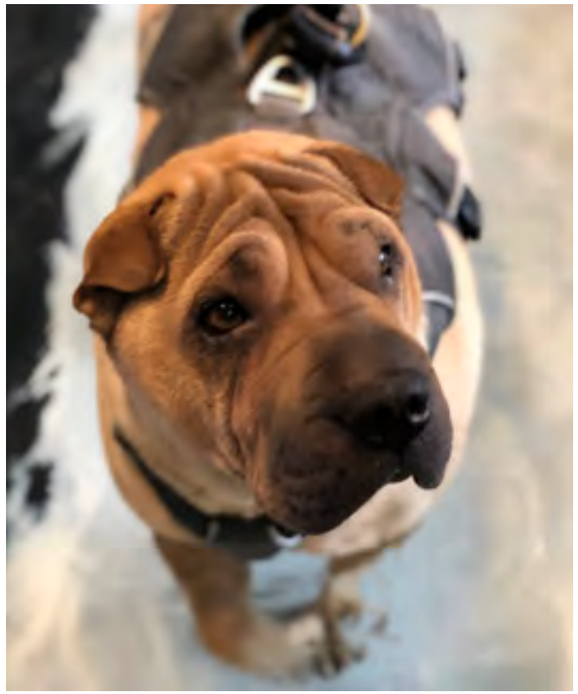


Photo credit: Ashleigh Martyn.

In photo: OVC patient, Beaner, with RVTs Jacy and Quinn, page 16. Three months after surgery, Beaner during one of his weekly water treadmill therapy appointments at the Ontario Veterinary College's Fitness and Rehabilitation Service, page 18.

"After surgery, it felt like a giant weight had been taken off of our shoulders, but it was quickly replaced with a new one: a waiting game and a long road to recovery ahead," Tanya remembers.

Beaner ended up spending two weeks at OVC. At first, he was totally unable to move his legs. Gradually, he could sit up for short periods of time, but still unable to stand on his own. "Did we make the wrong decision?" they wondered.

Tanya and Rick took Beaner home in January and decided to continue with the recommended rehabilitation plan, a mix of both wet and dry therapy sessions with the Ontario Veterinary College Fitness and Rehabilitation Service located in the Hill's Pet Nutrition Primary Healthcare Centre.

"The first few water treadmill sessions were heartbreaking, as we watched Registered Veterinary Technicians (RVTs) Jacy Ford and Quinn Moyer, under Dr. Tiffany Durzi's guidance and direction, sit in the tank with Beaner and move his legs for him. But then two weeks into his therapy something incredible happened: Beaner's progress leaped forward – he was able to stand up on his own, walk with less assistance during rehab sessions and eventually, six weeks after that, walk around completely unassisted," Rick recalls.

Both Rick and Tanya recognize they only met a fraction of the staff and medical team who played a role in their dog's recovery.

"Beaner was admitted to OVC over the holidays, which means that everyone who made the commitment to be there gave up spending time with their family and loved ones. This level of devotion often goes unnoticed and unappreciated. We would like to take this opportunity while we share our story to give our heartfelt thanks to everyone at OVC who has gone above and beyond to help our dog and the many other pets in their care – it is because of you that our family is whole again."

Today Beaner's owners say he is back to his old self at home with his usual larger-than-life personality and Tanya and Rick are no longer questioning if they made the right decision. His right front leg still slips inwards when he walks and he has a bit of a limp on his back-right leg too. He's a bit clumsy when he gets excited, but Tanya and Rick are hopeful that even these abnormalities will improve over time.

"In the end it's made us cherish the little things that add up to what makes your dog a special part of your life. The trivial things; like how he comes to the kitchen expecting peanut butter because you opened the jar. How he buries his head between you and the sofa during a thunderstorm. How he actually seems to be enjoying watching television on a lazy Sunday. This scare, the experience of almost losing him, highlights how much Beaner is a special part of our lives because we could not imagine our family without him."

YOUR GIFTS AT WORK

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

COMPANION ANIMAL HEALTH

Tick surveillance in veterinary clinics
Dr. Scott Weese
Tick types and distributions are changing in Canada, particularly Ontario. Better information about the ticks that are found, where they are found and factors associated with their presence on dogs and cats is needed to control tickborne diseases.

An investigation of hyaluronan in cats and dogs Dr. Alexa Bersenas
There is increasing evidence that liberal use of intravenous (IV) fluids is negatively associated with outcome in critically ill people and early investigations are suggesting similar results in dogs. This study is intended to provide the preliminary foundation for assessing alternative, more restrictive IV fluid practices in cats and dogs presenting with shock.

Internal sterility of 3-D printed plastics used for customized surgical tools
Dr. Alex zur Linden
The goals of this research are to ensure 3-D printed plastics are internally sterile and can be safely used in the surgical suite for clinical patients to repair skull defects or other skeletal abnormalities. The use of 3-D printed plastics in medicine is a relatively new emerging field and the safety of its potential applications are not fully known.

The ability to reuse a mini-laparoscopic vessel sealing device Dr. Ameet Singh
This research will determine whether a novel mini-laparoscopic vessel sealing device can be reused for clinical surgery, which may allow for advanced minimally invasive surgery to be performed in small mammals, reptiles and other miniature avian and exotic pets.

Exploring veterinarians' and pet owners' views and expectations of veterinary care
Dr. Jason Coe
The relationship between veterinarians and their clients can greatly influence the health and well-being of pets. A veterinarian's approach to communication can impact veterinary outcomes including client adherence, client satisfaction, veterinarian satisfaction and client recall of information. Study will seek further understanding of the needs and expectations of today's veterinary client within the complex context of veterinary practice.

DOG HEALTH

Ultrasound markers for fetal readiness to birth Dr. Cathy Gartley
Study could be applied to more accurately assess fetal readiness, thus improving reproductive success and outcome of live born puppies either from natural birth or caesarean section intervention.

A new method for identifying immune genes in dogs Dr. Stefan Keller
Many diseases are caused by or influenced by a group of immune genes that are inherited. This study aims to establish a novel method for determining these immune genes in dogs, which might contribute to our understanding of these diseases.

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.

Using ultrasound to determine how well bladder stones will break up using a medical laser Dr. Stephanie Nykamp
Ultrasound is readily available in most general practices and this study will provide general practitioners with a new tool to determine if patients can successfully undergo a non-invasive medical laser procedure for the treatment of bladder stones in dogs.

Discovering potentially targetable modulators of canine osteosarcoma metastasis Prof. Alicia Viloria-Petit
This research aims to demonstrate that the communication among 3 proteins (named ezrin, TAZ and YAP) is key for the lung dissemination (metastasis) of dog bone cancer. By targeting this communication in the future we might be able to significantly prolong the life and enhance the quality of that life in dogs with bone cancer.

Changes in the fecal microbiome after surgery Dr. Shauna Blois
Surgery can alter the gastrointestinal microbiome in pets and humans, and these changes could be linked to surgical complications. This study will identify the changes in the gastrointestinal microbiome after surgery in dogs.

Evaluating 3-D printed customized surgical guides and plates for correction of limb deformities in dogs
Dr. Michelle Oblak
This research will allow for development of a method to plan and print customized 3-D printed surgical guides and plates to aid in repair of limb deformities in dogs. Angular limb deformities causing patellar luxation are one of the most common development orthopedic diseases in dogs and this technique will improve the ability to help these patients.

CAT HEALTH

The effect of shelter admission and short-term stay on feline gut microbiota
Dr. Shane Bateman
Understand potential health impacts on cats in shelters and new homes and develop measures to better identify, control and prevent infections.

Does age influence cardiac structure and function in cats? Dr. Sonja Fonfara
With aging the chance of acquiring a heart disease increases, but whether cats' hearts undergo changes with aging is largely unknown. Study will obtain normal routine and advanced cardiac ultrasound measurements and biomarkers from senior cats to be able to better diagnosis, monitor and manage feline patients.

AVIAN & EXOTIC HEALTH

Generator for a miniature 3mm diameter vessel sealing device for minimally invasive surgery (EQUIPMENT)
Dr. Hugues Beaufrère
Develop mini-laparoscopic techniques to provide alternative options to open surgery in smaller patients such as birds, reptiles and rodents and align their standards of care with what is commonly done with other pets.

Determining effective anesthetic dose of isoflurane and isoflurane with midazolam in healthy Quaker parrots
Dr. Andrea Sanchez
Provide a predictable and balanced anesthetic protocol to pet birds.

Giving BACK Through Discovery

Why I took part in an OVC Research Study

In photo: OVC behaviour study participant, Finn. Photo credit: Ashleigh Martyn.

At the Ontario Veterinary College (OVC) scientists regularly rely on the contributions of pets and their owners to study, discover and impact their specific area of research. I should know; my name is Ashleigh and I write stories about science and discovery in my role at OVC Pet Trust. When I learned that my dog Finn and I could help improve companion animal welfare by participating in a research study that could not only benefit Finn, but also the broader dog population and society as a whole (less fearful dogs = fewer dog bites!), it was an easy decision to get involved.

THE STUDY: EXAMINING METHODS FOR REDUCING FEAR IN DOGS DURING ROUTINE VETERINARY APPOINTMENTS

I picked this study because as a dog owner I know it is probably safe to say most dogs don't love trips to the "dogtor". My three-year-old Border Collie / Golden Retriever mix Finn has had to make numerous trips to our veterinary hospital within the first few years of his life, and I am grateful my dog has a very close bond with our family veterinarian. Thanks to the compassionate care he receives on each visit to the hospital, he's had positive and friendly experiences. Whether I have had to bring Finn in for a regular wellness check or for the unfortunate diagnosis and treatment of his recently discovered epilepsy, our veterinarian managing his care makes him wag his tail with excitement. But with each visit there are new smells, noises, other animals, strange people of all ages and the anticipation of the unknown that can be overwhelming. Having been to the veterinarian with both a sick and well pup I know all too well that going to the hospital comes with some anxiousness. I was motivated to know that by taking part in this study I could in some way help reduce that stress for someone else's dog in the future.

The commitment to the study was clear from the beginning: what would be expected of my dog and I, how the study would be carried out and what the potential benefits would be for giving our time to the project.

Finn and I were one of forty-six dog/owner pairs who participated in the project that took place at OVC Smith Lane Animal Hospital. The research team assessed Finn's fear levels during his entrance to the hospital, including walking into the clinic and up onto the scale to be weighed and during a standardized veterinary physical exam. The program lasted for four weeks; scientific assessments of his fear responses were made on the first visit and again after the four-week training program was complete. We were instructed to complete five-minute 'cookie visits' to the hospital once a week during that month for at least five minutes. We were given homework too. I performed practice exam-style handling with Finn at least twice a week for that month, for five to 10 minutes each session.

There were four main areas of handling methods and progressions that Finn and I did together at home: ears, mouth, body and paws. Emphasis was placed on making it a positive experience for the dog (welfare is always the number one priority) by pairing each handling exercise with a favourite treat. It was important to do the exercises gradually, monitor for fear behaviour to keep Finn below threshold and maintain my own personal safety.

The study was funded by OVC Pet Trust and led by PhD candidate Anastasia Stellato, a trainee within Professor Lee Niel's Companion Animal Behaviour and Welfare Lab at OVC.

WHAT I LEARNED ABOUT MY DOG THROUGH THIS STUDY

Research shows many factors can influence dog fear responses during veterinary visits, but when owners can recognize signs of fear and address it effectively by reducing responses to trigger stimuli, this can make the animal feel more comfortable. "Investing time and consulting with your family veterinarian regarding how to successfully change your dog's behaviour at the clinic can help make it a more pleasurable experience for the animal and the people they interact with in a hospital environment," says Stellato.

As Finn and I slowly progressed through our handling homework, I noticed he became more comfortable the more we worked together. My dog is particularly food-motivated, which definitely helped.

Giving back to science was a rewarding and insightful experience and important for bettering the health and welfare of pets everywhere. Science is all about discovery: uncovering new knowledge, forming connections, generating wisdom and creating impact. I'll be very interested to learn the results when the study Finn and I took part in is officially published in the near future. The next time you come across an opportunity to give back to science, I hope you'll consider the value in and the benefits of volunteering your time and getting involved.

HOW PET OWNERS HAVE HELPED CREATE NEW KNOWLEDGE

PUPPIES

Puppy owners helped identify behavioural responses that show when puppies are scared. This will help owners improve puppy interactions with the world around them. Did you know that barking can indicate that a puppy is afraid?

DOGS & NOISE

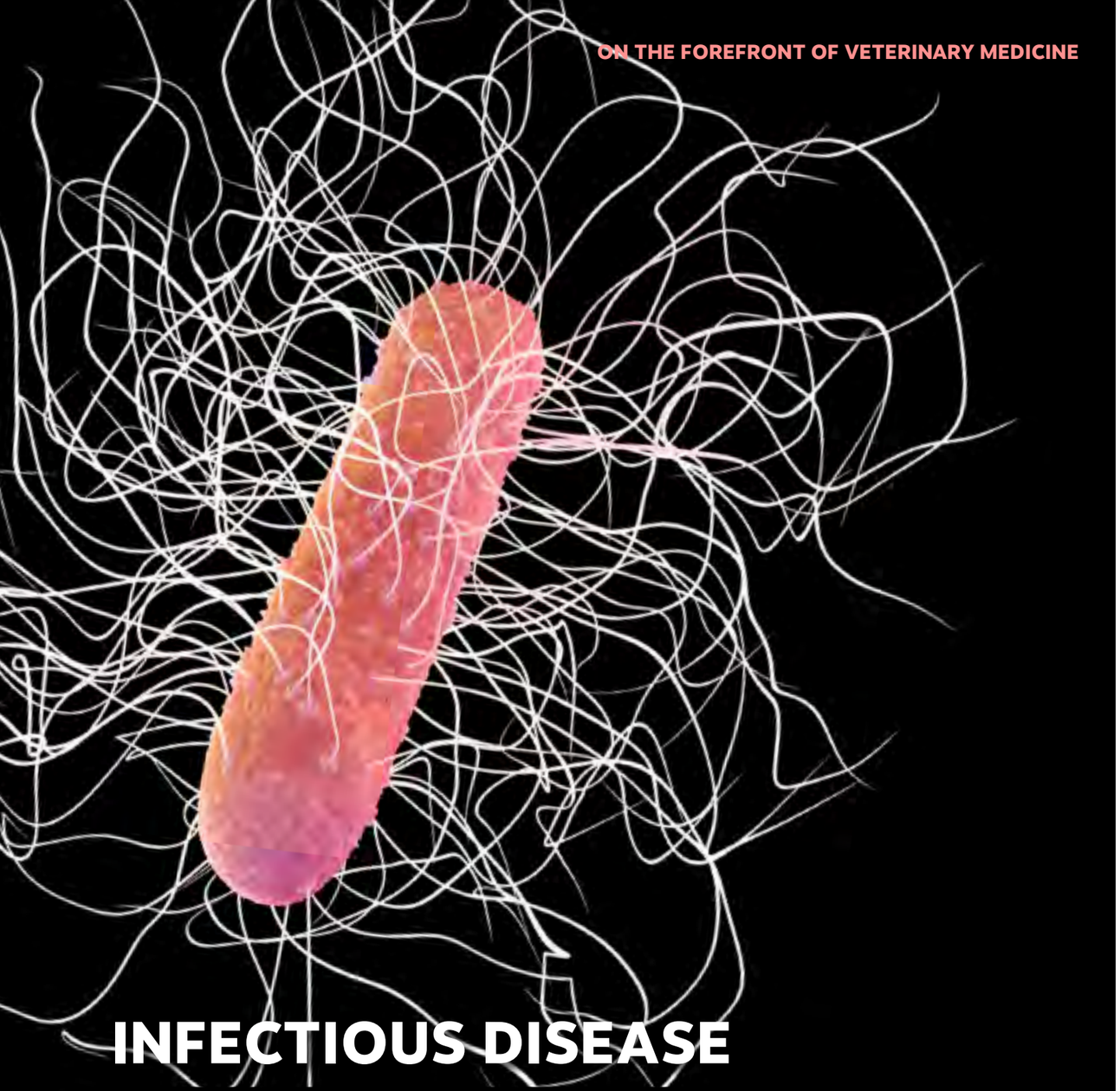
Ontario dog owners helped determine that high levels of background noise contribute to canine stress during routine examinations at the veterinary hospital. Try to keep the environment as calm as possible during veterinary visits so that it doesn't add to your dog's stress!

VET TEAMS

OVC researchers also ask veterinary staff to help out with data collection. In a recent survey it was found that many veterinary clinics are reducing fear in animals during routine veterinary visits by gaining certification through special programs such as the American Association of Feline Practioners's *Cat Friendly Practice*.

SIGN UP

If you are interested in participating in future research studies keep an eye on OVC social media channels: @ovcpettrust or @ontvetcollege on Twitter, @ontvetcollege on Instagram, www.facebook.com/ovcpet and www.facebook.com/ontvetcollege or email ovcinfo@uoguelph.ca.



INFECTIOUS DISEASE

Did you know that according to the World Health Organization, antibiotic resistance is one of the biggest threats to global health?

Resistance makes it more difficult to treat a growing number of infections as the drugs used to treat them become less effective; resistance can affect all species and anyone, of any age, in any country. While resistance to drugs occurs naturally, a lack of understanding or the misuse of antibiotics in humans and animals is accelerating the process.

In photo: 3-D illustration of a *Clostridium difficile* bacteria. Photo credit: istock.com/ gaetan _stoffel

With the speed of climate change and the rapid growth in urbanization, globalization, overpopulation and current trends in pet ownership, the study and understanding of infectious disease is of increasing importance. "If you think about it, it is obvious: disease spreads around the world because humans and animals move," says Dr. Scott Weese, professor at the University of Guelph's Ontario Veterinary College (OVC).

Weese is an international leader in the field of infectious disease or infectiology, a medical specialty dealing with the diagnosis, control and treatment of infections. His specific interests lie in managing the risks associated with diseases that can be transferred between animals and humans, or vice versa, commonly called zoonotic diseases.

RESISTANCE TO DRUGS

As people and animals travel, the chances of coming in contact with or in bringing foreign viruses home is greater than ever before. Furthermore, the rising threat of drug resistant superbugs – disease strains that are not or are no longer affected by certain medications due to liberal use of antibiotics that are normally reserved for serious infections – there is an urgent and growing need for more knowledge and awareness of infectious disease amongst the general population. How are infectious diseases controlled, how do they spread and how does our behaviour magnify their impact on our overall health?

Weese explains that everything is interconnected: infections, antibiotics and resistance are all intertwined. The better we can isolate and control infections, the better we can optimize our health and well-being. The more we can prevent or control diseases, the more we can limit antibiotic use and ultimately drug resistance.

He points out that the strategy for reducing unnecessary antibiotic use is directly linked to reducing disease in general. For example, Weese's research that investigates methods to control *Clostridium difficile* (*C.difficile*) within human hospitals, a potentially deadly bacteria that infects people and animals, indicates that we need to control flu in the community. If we can control seasonal flu, we have a lot less people who are sick, resulting in fewer hospital stays, decreased use or need for antibiotics and a reduced number of hospital-acquired infections. The same applies with animals. Preventing disease reduces secondary bacterial diseases and the need for antibiotics to treat or prevent those diseases in the first place.

Weese has coordinated and published international guidelines for antibiotic use that are influencing veterinary care around the world and wants to address a pressing issue: how can we support veterinarians in providing excellent patient care and using antibiotics most appropriately and effectively in each case?

"In order to decrease the burden of disease (the impact of a health problem on a given population, measured using a variety of indicators such as mortality, morbidity or financial cost), we must improve antibiotic use across the board in both human and veterinary medicine," Weese says.

HELPING PETS

Weese is one of only a handful of prominent experts worldwide who has dedicated their career to the study of infectious disease, and is regularly called upon to develop tactics to manage and mitigate emergent diseases and outbreaks in Canada. Often dealing with the unknown, he tackles issues as if he were a detective. He spends his days working with veterinarians, physicians, public health agencies, researchers and provincial, federal and international government agencies who seek his expertise.

"OVC has invested time and effort in developing our expertise in this area," Weese says. "Research support for various studies, including funding from OVC Pet Trust, has allowed us to invest in this field."

According to Weese, the scientific exploration and increased knowledge of infectious diseases can save the lives of pets in three major ways. First, there are clinical benefits: research and progress make it possible to treat animals with rare or emerging infections. Second, preventive medicine benefits pets by helping to prevent and control infectious disease. Third, lack of owner education and awareness may lead to euthanasia or rehoming of pets; people often lose their pets because of fear, worry and anxiety about infections. He says the more we can communicate with pet owners, work with physician groups and veterinarians, the more we can help owners reduce risks associated with pet ownership when they are going through a health problem so they don't have to give up or surrender their animal.

NEXT IN DISCOVERY

For Weese, there is always something new on the horizon, whether it is studying West Nile, Lyme disease, *Echinococcus multilocularis*, canine flu or leptospirosis. He says when we start to understand one infection, we have to figure out how to apply it to the next emerging infectious disease. His future work will examine infection control at large international dog shows, the use of antibiotics in animal cancer patients and the implications of importing pets from other countries into Canada.

He emphasizes the important role veterinarians play in controlling emerging infectious diseases; pet owners who have questions about how to protect their own pet should always consult with their family veterinarian.

"The goal is to improve the use of antibiotics across the board to improve the outcomes of patients we are treating today, and to reduce the risk that future patients, human or animal, contract a drug resistant infection," Weese says.

Dr. Scott Weese is a Canada Research Chair in Zoonotic Diseases and professor at OVC. He is also the newly appointed Director of the Centre for Public Health and Zoonoses at U of G. Dr. Weese has offered his expertise to help manage disease outbreaks such as:

- Developing protocols for containing and eradicating canine influenza from Canada.
- Identifying new species of ticks and tracking tick behaviour in Ontario.
- Investigating and containing *Brucella canis*, a bacterium that can cause disease in dogs and people, in kennels and puppies in Ontario.
- Partnering in a Lyme disease lifetime study to help understand how this disease is emerging in dogs in Canada.
- Developing provincial isolation protocols for potentially exposed animals as part of dealing with the worldwide 2015 Ebola virus outbreak.
- Maintaining a blog to inform on the status of infectious diseases in Canada (www.wormsandgermsblog.com).

SAYING GOODBYE

By Dr. Doreen Houston
DVM, OVC 1980

Photo credit: Smiling Blue Skies.

RAYNER-SHINE,

my all-weather friend, Houston-van Berkel the First, "Rain" for short.

I still remember the phone call one day in December 1999 when I was away from home on business. A veterinary colleague called me with a plea to adopt a rescued four-month-old Border Collie cross puppy that needed to be rehomed immediately. We had lost our beloved dog Barnio, another rescue, at 16 years of age a year earlier and had Whisper, another mixed breed rescue, at home. Whisper had really aged with the loss of her friend so without question, the answer was yes and a bundle of joy entered our lives. Rayner was a wonderful puppy, full of mischief but easily trained by our older girl Whisper, whose life was revived with the antics of a puppy.

On March 17, 2011, we were given devastating news. I gave Rayner a kiss on her nose as I always had, and there it was: a small lump behind the lower canine tooth on the right side of her jaw. My heart sank as I knew cancer was the probable diagnosis. I am a veterinarian but not with my own pets; I am a "pet mom". The next day, Rayner's veterinarian took a biopsy and the news confirmed the worst. Rayner had malignant melanoma. As my veterinarian and friend hugged me, I tried to hold back my tears. Useless. My dog had a cancer that I had been taught had a very poor prognosis. My husband Kees and I immediately went to the Mona Campbell Centre for Animal Cancer at OVC where Dr. Paul Woods sat with us and discussed all the options for Rayner. After discussing our options, it was clear to me that surgery was the best option to give our girl the best chance possible. The procedure removed part of her jaw and associated lymph nodes.

By the time our grandson Bennett was born in September of that same year, Rayner was five months post-operative. With our help, she had learned how to eat again – it was messy, but she did it. The day Bennett came home from the hospital we were all there to greet him. And that was the beginning of a wonderful friendship – a boy and his dog. For the next three years, Rayner traveled with us to Toronto where we stayed and cared for Bennett two days per week. Rayner and Bennett were best friends and it warmed my heart.

When Rayner was in her fifteenth year, she really slowed down. She developed a lump on her spleen and I was terrified it would rupture when I wasn't home. We made a very difficult decision: it was time to say goodbye. We set the date in advance so it would be after her birthday and immediately after we did one last Smiling Blue Skies Walk for Canine Cancer together – her third and final one (I would do two more in her honour). I had a hard time talking to anyone at that walk knowing what we were facing, but it was important we completed it.

We knew the place where Rayner's euthanasia would occur – with Dr. Paul Woods, her oncologist, at OVC.

Like all of our dogs before her, we made her a special last meal at home. We went for a walk in our favorite forest before we drove to OVC. She ambled along slowly but enjoyed one last woof at a squirrel. I lifted her carefully onto her blanket and into the car. We made the last trip with her to OVC with tears streaming down my face. Dr. Woods and his team were compassionate and supportive as we laid with her on the floor. Kees and I were with her until the last breath: holding her, loving her, cherishing her, missing her immediately. The tears are flowing again now as I write this. Memories flood my mind and my heart overflows with the joy that was Rayner.

We requested an autopsy and cremation. As a veterinarian, it was important to me to find the final answers and give her oncology team closure on whether the cancer had returned. It had not. We brought Rayner's ashes home to be with our other dogs that have gone on before.

We still have the plaster imprint of her paw, her collar, the letters, cards and memorial donations made to OVC Pet Trust in her memory. I made a photo album of her life and every once in a while, look at it and smile. Years later, tears can still come easily. I sometimes find myself telling Obi, our two-year-old Golden Retriever, that he would have loved Rayner. He likes to hang out in the same corner of the yard where Rayner did. That makes me smile.❋

In photo: Dr. Doreen Houston and Rayner at the 2014 Smiling Blue Skies Walk for Canine Cancer in Guelph.

SIX DEGREES OF SEPARATION

by Suzi Beber

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

www.smilingblueskies.com

Last year around this time, I was writing about the wild and wacky weather we had been experiencing on the west coast. Well, this year, we were gifted with more of the same, including over a foot of snow for the dogs to frolic in, and now, new life is springing forth all around us, and I find it hard to believe that 18 years of changing seasons have passed since the founding of The Smiling Blue Skies Cancer Fund, and the beginning of a friendship that has spanned the whole of Canada.

Out of life's challenges, special relationships are forged, and in my case, one email paved the way to a friendship that lay down roots in Ontario and bloomed on Vancouver Island.

For all of Lesley's life, March 8th marked her mother's birthday, and though she lost her mother to cancer in 1989, in 2001, that date changed Lesley's life in ways she could not have imagined, when her Golden Retriever, Grizz, was diagnosed with lymphosarcoma. Lesley reached out for support, and I answered. We did not know, that a mere 19 days after exchanging our very first email, we would lose both Grizz and Blues, on my father's birthday, March 27th, 2001. In our shared grief, the foundation of an unshakeable bond was built, that has remained unchanged to this day.

Lesley is a hero of Smiling Blue Skies, from its early beginnings, when we could only share letters and photographs, never knowing that one day, we would live a mere two hours from each other, instead of a five-hour plane ride away, leading to walking side by side in events in Victoria and Nanaimo, participating in yoga for dogs during Woof-fit Tofino events, and anything and everything in-between, always cheering each other on through life's highs and lows. Because of our individual health issues, we often joke that we are two halves of a whole.

Lesley and I share a special catch phrase, "Blue Skies and Golden Sunsets Forever," which was born out of Blues' and Grizz's registered names, and each year, on their special day, a candle burns brightly for them both.

And just like those times all those years ago, Smiling Blue Skies offers 24/7 support to anyone whose life has been touched by cancer, and it doesn't matter where you live!

May 5th marked Calgary's 17th Annual Smiling Blue Skies Walk for Canine Cancer.

Lots of other activities are coming your way in 2019 too.

Check out the second edition of our "Kindred Spirits" candles, our special collaboration with Tofino Soap Company. 100 per cent of the proceeds fund innovative cancer research, benefitting both the precious pets and people in our lives.

Stay tuned for the release of the OVC Pet Trust Smiling Blue Skies 2018 Update Report and please check out our new website!!

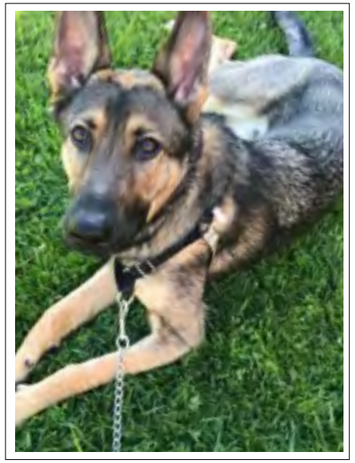
Thanks to all of you, we are changing the face of cancer. Long live blue skies, where hope is a kite and dreams really do come true.

Photo credit: Suzi Beber.

PETS IN MEMORY

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

Dear OVC Pet Trust,



REMEMBERING MANDY

My son Mark and I adopted a five-week old German Shepherd puppy in July 2017. With the tremendous caring, loving, and highly dedicated professional support from Thornhill Veterinary Clinic, Mandy flourished within her short 14-months, to gain over 50 pounds, in-spite of her many medical obstacles. Regardless of her physical milestones, Mandy was energetic, affectionate and a beloved member of our family – more than my meagre words could ever express.

Mandy and I spoke to one another beyond words and she quickly perceived my moods, needs, routines and intentions much faster than me. She could also find and fetch by name, more than 15 of her toys. Now I sound like a proud "puppy mom". Her wonderful puppy trainer adored her as did the puppy members in her puppy training groups. I could never express the relationship that Mandy and I shared.

She was my alarm clock in the mornings with her licks to my face; the guide for my 94-year-old mom who lived with us; the devout motivator for our 11-year-old dog Deebo and my best buddy. I knew more neighbours (and their pets) than I ever did before, because of the love that Mandy aroused in others. So, you see, Mandy was a divine gift to me. I can only hope and pray that I returned as much to her.

Mandy passed away on August 8, 2018.

There are days when I cannot eat or stop crying. And then today, I received a letter from OVC Pet Trust describing a monetary gift donated to your organization in Mandy's memory by her loving veterinary clinic staff. I cherish the precious gift that your organization and Thornhill Veterinary Clinic have so graciously given for Mandy.

May your work continue with tremendous success, insights and new discoveries to assist and deepen the wonderful work that I know you do.

With much gratitude and appreciation,
Sheila Chichelnik

To share your "In Memory" story, please email Ashleigh Martyn at ovcpet@uoguelph.ca.

5 THINGS TO CONSIDER WHEN *Memorializing* A PET

When coping with losing a pet, people may find it helpful to celebrate, memorialize and honour their life.

- Save sympathy and condolence cards, emails and letters from family and friends.
- Create a picture collage, scrapbook, story or poem about your pet.
- Make a journal of your pet's story: how, when and where you met, unique personality traits, nicknames, what you love the most and what you will miss the most.
- Donate time, money or talent in your pet's honour to an animal charity.
- Create a mold of your pet's paw or another memorial item as a cherished keepsake. Veterinary hospitals may provide this service.

Visit www.pettrust.ca/petlossresources to access support resources created by OVC Pet Trust.

Did You Know? OVC Pet Trust has a Pet Memorial Program and sends more than 45,000 memorial letters annually to pet owners who have lost a best friend. Visit our website to learn how you can make a gift in memory of a pet at www.pettrust.ca/donate.

#PETTRUSTPALS

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

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TEDDY BEAR SURGERY (PHOTOS 1 AND 3)
The University of Guelph celebrated its 95th College Royal in March 2019. More than 900 children had the opportunity to visit OVC's Teddy Bear Surgery, where the OVC class of 2020 and 2021 led them through a mock physical exam, surgery prep, procedures and bandaging techniques. Participants took a pose in OVC Pet Trust's 'Official Teddy Bear Surgeon' photobooth after they scrubbed in and performed their surgeries.

OTS DOG JOG (PHOTO 2)
This March, the 9th Annual OTS Dog Jog in Guelph raised more than $12,400 to support OVC Pet Trust. To date, more than $75,000 has been raised from this student-organized initiative, all to make a difference to benefit companion animal health and well-being at the Ontario Veteinrary College.

TAKE A PAWS (PHOTOS 4 AND 5)
Now in its third year, this spring University of Guelph students were able to once again "Take a Paws" with therapy dogs during the exam period. Take a Paws began in 2016 and is a bi-annual event organized by the U of G McLaughlin Library in partnership with St. John Ambulance, the Ontario Veterinary College and OVC Pet Trust.

YOUTH IN ACTION (PHOTO 6)
Ten-year-old Paige fundraised for OVC Pet Trust and visited Ontario Veterinary College this winter with her family for a tour of the college and to see how the funds she raised will help pets.

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IF UNDELIVERED, PLEASE RETURN TO SENDER:
Ontario Veterinary College, University of Guelph
50 Stone Road East, Guelph, Ontario Canada N1G 2W1

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

COMING EVENTS

JUNE 8: Healing Hearts. A Day of Learning for Veterinary Professionals – Ontario Veterinary College.

JUNE 21-23: Alumni Weekend – University of Guelph.

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

OCTOBER 3-5: Veterinary Education Today Conference & Medical Exposition – Toronto, Ontario. Visit OVC Pet Trust in booth # 315.

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

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

WWW.PETTRUST.CA