

# WEST COAST VETERINARIAN

DECEMBER 2019 | N° 37

IT'S A

*WILD*

**WORLD**

SEE WCVL STUDENT LIAISON COLUMN



## SOCIAL MEDIA

HORNER'S SYNDROME

THE INTESTINAL MICROBIOME

RABIES IN BC



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COREY VAN'T HAAFF  
EDITOR

» TO THE EDITOR

Letters from members are welcome. They may be edited for length and clarity. Email us at [wceditor@gmail.com](mailto:wceditor@gmail.com).

» ON THE COVER

Photo courtesy of Robin Owsiaci

Spring is the time of greatest change, or at least that's how I feel. Winter would place fourth of the four seasons when considering new beginnings, and yet, for veterinarians in BC, I think this winter is time to realize they are on the cusp of great things, new challenges, and new activities.

For certain, front and centre is addressing BC's current labour market shortage. We simply do not have enough veterinarians (or veterinary staff and technicians) to meet the demands of the public, whether we are looking at companion or large animals, food animals and food safety, aquaculture, or honeybees. Change will be required and is unstoppable; whether that change will be for the good of the profession and clients or not will be determined in some ways by outside forces.

The Chapter is working for the good of the profession. Our government campaign did not achieve the outcome we hoped for, but not for lack of trying. So armed with statistics, surveys, a labour report, and a vigour for advocating for what is necessary, we have reached out to our membership with a plan to lobby the government to move from their current position that veterinarians and an increased investment in training new veterinarians are not priorities for this province. This is only one step in our work to try to address the labour market shortages.

Another new achievement for the Chapter is in one of our primary functions: creating and delivering continuing education. I heard someone at our Spring Sunday CE Session in Surrey say, "Who ever heard of a veterinary conference selling out?" but ours did. Twice. Our efforts to get out into various areas of the province and bring affordable, relevant, and high-quality CE to veterinarians seems to be working. We sold out in Surrey and Victoria, with a near-capacity crowd in Kelowna and a larger-than-expected group in Cranbrook. And our members are asking for more, so in 2020, we will be in Prince George, Mid-Island, Kamloops, and Abbotsford. None of this would be possible without our very generous sponsors. I ask that you take note of which companies sponsor our events and thank their reps the next time you do business with them. [WCV](#)

Email: [wceditor@gmail.com](mailto:wceditor@gmail.com)



We know how hard it can be to find a locum. To make it easier, we are publishing a list of BC locum veterinarians here in *West Coast Veterinarian*. Inclusion in this list is a no-cost enhancement of the paid classified ads for locums available.

Please contact any of the locum veterinarians listed below, or search the classified ads for the most up-to-date list of available locums here: [www.canadianveterinarians.net/sbcv/classified-ads.aspx](http://www.canadianveterinarians.net/sbcv/classified-ads.aspx).

This is one more way we are helping our members.

**DR. BEN BAUMAN**  
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Small animal veterinarian, experienced in internal medicine, soft-tissue surgery, and dentistry, based in Prince George. Willing to travel.

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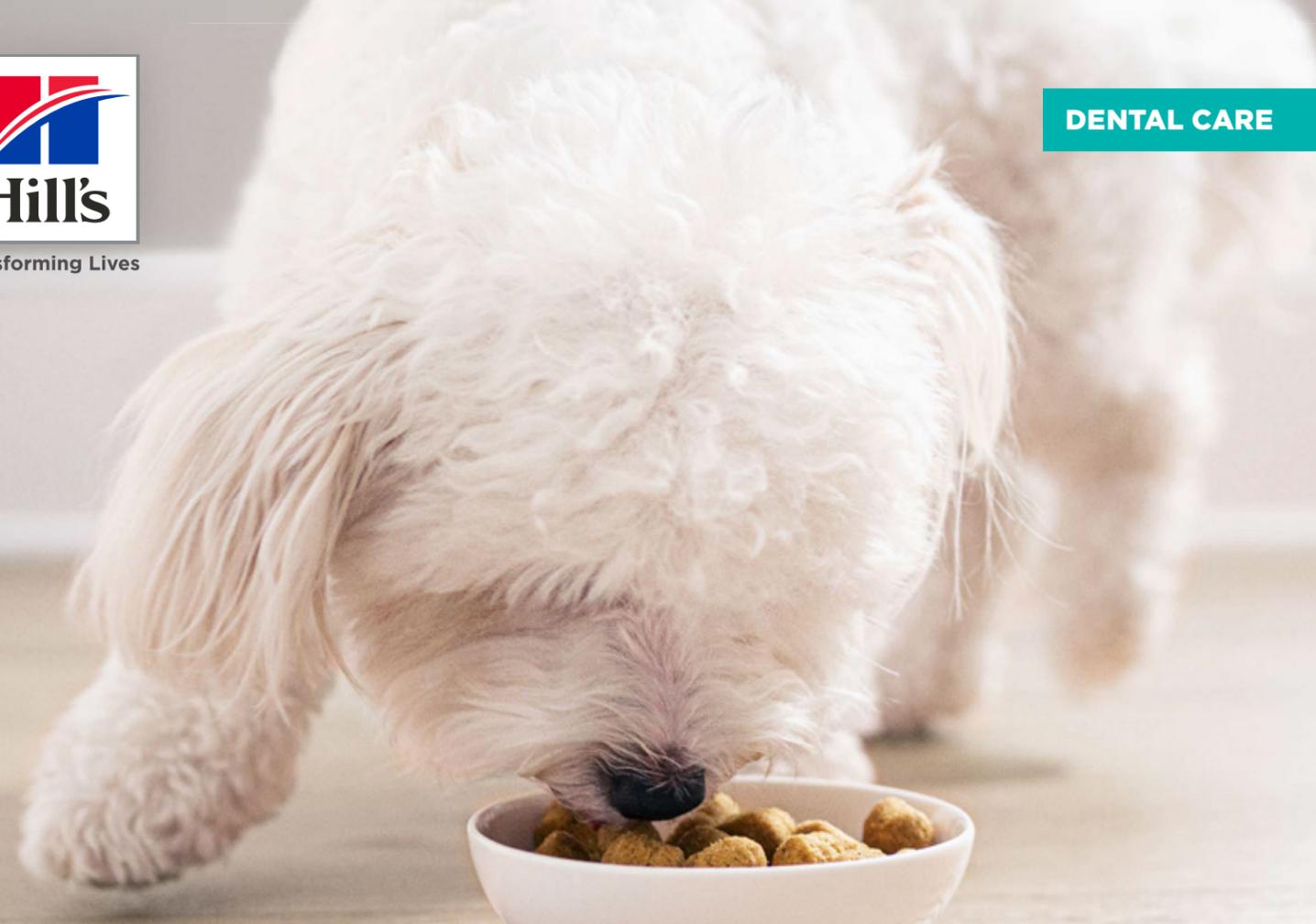
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**SUSAN L. FORD, DVM, Dipl. ACVIM**, received her DVM from WCV in 1986, followed by an internship in small animal medicine and surgery at the Animal Medical Center in New York City. Dr. Ford completed

her residency in small animal internal medicine at the University of Florida and was integral in developing their oncology service. After receiving ACVIM board certification in internal medicine, Dr. Ford worked in multi-specialty referral hospitals in New York City and Houston before returning to the University of Florida as a faculty member. She returned to Canada in 1999 to develop the internal medicine and oncology services in Vancouver. Dr. Ford's interests include hiking, biking, exploring, water sports, skiing, and travelling. She also has a lifelong loyalty to Golden Retrievers.



**GEOFF HUTCHINSON, MS, DVM, Dipl. ACVS**, is the staff surgeon and a founding partner of Boundary Bay Veterinary Specialty Hospital. From southern Alberta, he received specialized surgical training and

board certification in the US, and started surgery departments in Arizona and New York before returning to western Canada in 2009 to open Boundary Bay Veterinary Specialty Hospital. Dr. Hutchinson's interests include joint disorders and treatment, minimally invasive techniques, and fracture repair. In addition to TTA and TPLO, he brings several cutting-edge treatments to his practice including arthroscopy, laparoscopy, Kyon Zurich Cementless total hip replacement, PAUL, PGR, and fracture repair using the ALPS titanium locking plate system.



**ELAINE KLEMMENSEN, DVM**, was once the love interest of a camel and learned she can outrun an ostrich when her life depends on it. After graduating from WCV in 1991, Dr. Klemmensen's adventures

in veterinary medicine have included associate, practice owner, locum, and volunteer with seven organizations in seven different countries. She is passionate about people as well as pets and is studying leadership at Royal Roads University to learn how to help veterinarians and their teams thrive. Her adventures these days are mostly from the seat of a bicycle, but she dreams of riding the Silk Road one day. On a bicycle . . . not a camel.



**JESSICA LAM, BSc, DVM**, was born in Hong Kong and raised in Vancouver, BC. She completed her veterinary degree at Oregon State University in 2012. Since then, she has moved back to Canada where she has worked

at the Ontario Veterinary College, in private referral centres, in emergency clinics, in general practice, and as a consultant in the veterinary pharmaceutical industry. Throughout her career, she has prioritized patient care above all and works with clients to strengthen the human-animal bond. Dr. Lam's professional

interests include surgery, preventative medicine, and ultrasound. She is currently pursuing an acupuncture certificate through the International Veterinary Acupuncture Society. Dr. Lam enjoys snowboarding, tennis, yoga, scuba diving, and travelling. She has an orange tabby rescued from the Toronto Humane Society named "Miso" and a Morkie named "Mochi."



**MELISSA PELLEGRIN-TANNAHILL, DVM**, was born and raised in Sherwood Park, Alberta. She graduated with a specialization degree in animal biology from the University of Alberta in 2007 and with

her Doctor of Veterinary Medicine from the University of Calgary in 2012. After graduation, she joined a mixed animal practice in Camrose, Alberta, and worked on cows, horses, cats, dogs, sheep, snakes, and everything in between. She started doing emergency medicine only in 2014 and is now the team leader in emergency medicine at WAVES Hospital in Victoria. She enjoys the fast-paced environment and challenge of emergency medicine.



**ALEXANDRA PROTOPOPOVA, PhD**, has a doctorate in behaviour analysis from the University of Florida. She is an assistant professor in the University of British Columbia's

Animal Welfare Program. Her research focuses on the physiology, behaviour, and welfare problems experienced by companion animals housed in shelters and pet homes.



**KATHRYN WELSMAN, DVM**, graduated from OVC in 2007 and practised emergency medicine in Langley for several years before moving to the interior and working as a companion animal practitioner. She spent

many years as a board member for the Langley Animal Protection Society and as an investigator for the CVBC, and she volunteers with the RCMP police dogs.



**DANIELLE ZWUESTE, DVM, Dipl. ACVIM**, graduated from WCV in 2012, after which she completed a small animal rotating internship in Toronto. Her residency in neurology and neurosurgery was at the University

of California, Davis, from 2013 to 2016, after which she became board certified. She returned to WCV as an assistant professor from 2016 to 2019. She joined the Vancouver Animal Emergency and Referral Centre this summer, and her areas of interest include intracranial disease and feline neurology. Outside of work she enjoys scuba diving, aerial silks, and baking.

# WCV

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#### WEST COAST VETERINARIAN



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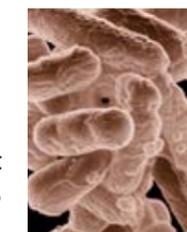
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HORNER'S SYNDROME

I am very disillusioned about our provincial government and what they think about animals and the people responsible for their well-being. We have been working with them for over a year with good support from the Ministry of Agriculture, but the Ministry of Advanced Education, Skills and Training did not see fit to approve an increase to the number of seats for BC students at WCVM, a request that came one year ago with a deadline of October 1, 2019. This lead time is required by WCVM to permit potential students to begin their application process for the class starting in 2020.

There are two major concerns about our government not proceeding with more support to our regional veterinary college, which WCVM surely is. First off, if the three remaining provinces that fund the college do not increase their financial support, WCVM will be forced to adjust its operating budget, which could result in drastic negative changes to undergraduate and post-graduate training as well as some research projects and outreach work. To offset the loss of funding, WCVM would have to offer the now available 20 extra seats (which Alberta used to buy) to other Canadian or even international students. These are the 20 seats we want the BC government to buy right now for BC students.

This raises the second concern. By opening up these 20 extra seats, WCVM announced that starting with the September 2020 year, they will be making seats available for Canadian students at a proposed tuition cost of \$65,000 per year. This cost to the prospective students is substantially higher and goes against the current provincial government's policy of supporting affordable tuition. By having seats that cost this much, many potentially great veterinarians may be prohibited from being able to access training, as their student debt would be overwhelming. To me, it is a tragedy if only the rich can apply. Compounding this problem is the fact that for the September 2021 intake, WCVM will need to sell international seats as early as January 2020—in a mere few weeks. The government's failure to act by the deadline has effectively closed the door to more BC-funded students for two years.

Why am I so upset about this? Well, thanks to many of you (including our third- and fourth-year BC students at WCVM) who responded to a survey funded by the government about the veterinary labour market, we concluded that we will be short 100 veterinarians a year for the foreseeable future. Now we have missed an opportunity to add 20 more students to double the number of students trained. The Sector Labour Market Partnership Report also reached other conclusions about ways to attract veterinarians to our province and also to more rural areas. We are not the only province having veterinary shortages, and so we are competing country wide.

Who is hurting from this shortage? Ask any family whose furry child has to wait two to three weeks to get an appointment to see their veterinarian. Ask someone who had to drive an hour or more after dark for emergency care because their family veterinarian was too burnt out from their overloaded day work to offer after-hours care. Pets are now an integral part of a family and are treated as children by most owners. If something happens to their beloved animal companion, then the owner's health can be affected, physically and mentally. A severe illness or loss of an animal can cause deep grief that can affect the well-being of the family.

What about biosecurity of our food? Veterinarians are pivotal in maintaining the health and well-being of our farm animals. Shortages of

veterinarians in this field are not new, but they are a huge concern. The federal government's changes in guidelines for the use of antimicrobials in animals were needed but have put an extra load on our profession as well.

We are involved with surveillance of both animal diseases and zoonotic diseases. With the recent increase in dogs being adopted from outside our country, we are all aware of dogs bringing in diseases that are potentially harmful to the public as well as to other dogs. As well, pigs in China and a number of European countries have tested positive for African swine fever. The only way to stop the spread of this disease is mass slaughter of affected pigs, and Canadians will be affected even if this disease does not reach Canada. Animal welfare, including of wild animals, involves veterinarians as they are trained to assess potential health concerns and develop preventative measures.

I am worried about where our profession is going. We have veterinarians who want or need to retire. We have many who are overworked and suffering from burnout or worse (we have the highest suicide rate of any profession). Many need the time to start and maintain a family. We need help to better serve the public. I wish our government thought animals, and those who love them, along with healthy and safe food, were worth this small investment in increasing the number of BC veterinary students, most of whom come back to BC to practise.

The Chapter would like to sincerely thank Dr. Ko Arman for her years of service to the Board and to the Chapter. The Chapter welcomes new Board member Dr. Fraser Davidson. Dr. Davidson (along with incumbent Dr. Sarah Armstrong) was elected to the Board and begins a three-year term. We look forward to working with him. [WCV](#)



*Al Longair, BSc, DVM, graduated from the Western College of Veterinary Medicine in 1977. After graduation, he joined a mixed animal practice in Duncan, focusing on small animal practice from 1981 on. He has been involved with the BCSPCA for over 20 years, serving as the president of his local branch for 12 years and on the*

*provincial management committee for 10 years, with four years as president. In the early 1990s, he served as chair of the CVMA Animal Welfare Committee. He lives on a small acreage with his wife, four horses, and four dogs and coaches youth soccer in his spare time.*

As your CVMA president, it's my pleasure to provide you with updates on some of the CVMA's initiatives.

The CVMA invites you to Canada's Veterinary Convention. Join colleagues for superior continuing education at Canada's only national multi-species veterinary convention in Quebec City, Quebec, July 9–12, 2020. Summer's place to be, ranking first among Canadian destinations, Quebec City has European charm, romantic ambience, exquisite cuisine, and delightful hotels. Stroll around Old Quebec, visit Montmorency Falls Park (30 metres higher than Niagara Falls), or explore Jacques-Cartier National Park. New in 2020: even more labs and workshops for the entire team, and keynote speaker Dr. Pierre-Yves Daoust, an early adopter, promoter, and leader in wildlife health and One Health concepts. Registration opens January 15, 2020.

Annually, through its awards program, the CVMA proudly recognizes individuals who demonstrated significant accomplishments, exemplary leadership, and tireless commitment to Canada's veterinary community. CVMA 2020 award nominations are accepted from November 2019 until January 31, 2020. Award nominees (excluding honorary membership nominees) must be CVMA members; however, non-members can nominate. More information on awards can be found at [canadianveterinarians.net/about/awards](http://canadianveterinarians.net/about/awards).

The CVMA recently received Canadian cannabis pet poisoning statistics from the Pet Poison Helpline in the US. Read more under the CVMA website's News and Events section.

The CVMA collaborated with the CFIA and other stakeholders to share information to prevent African swine fever from infecting the Canadian pig herd. Find more resources under [canadianveterinarians.net/practice-economics/asf](http://canadianveterinarians.net/practice-economics/asf).

The CVMA revised two position statements: "Neutering of Dogs and Cats" and "Surgical Castration of Horses, Donkeys, and Mules." Read them under the Policy and Advocacy section of our website under "CVMA Animal Welfare Position Statements."

Travelling this winter? CVMA offers members exclusive national and international hotel discounts. Save up to 50 per cent with rates averaging 5 to 20 per cent better than other online hotel booking services. Log in to the CVMA website and visit the Member Benefits and Services section to access the hotel discount program, search listings, and book your hotel.

[WCV](#)



*Melanie Hicks, BSc, DVM, obtained her BSc from the Nova Scotia Agricultural College before attending the Atlantic Veterinary College. Originally from Prince Edward Island, she moved with her family in 2003 after graduating to Moncton, New Brunswick, and began her career as a companion animal practitioner. After 10 years of*

*practising, Dr. Hicks joined Abaxis Global Diagnostics as a professional services veterinarian. She has been involved with the New Brunswick Veterinary Medical Association as a council member since 2009 and was acting president from 2011 to 2012. She joined the CVMA as a council member in 2013, serving on numerous task forces including the Business Management Advisory Group, Veterinary Wellness Advisory Group, and an innovation and technology group. Dr. Hicks currently lives in Moncton with her husband and son on a small alpaca farm and is working on her MBA in her spare time.*

## THE CVMA WELCOMED ITS 2019–2020 EXECUTIVE COMMITTEE AND COUNCIL IN JULY

**Executive committee:** president Dr. Melanie Hicks; president-elect Dr. Enid Stiles; vice-president Dr. Louis Kwantes; executive member Dr. Christopher Bell; immediate past president Dr. Terri Chotowetz; chief executive officer Mr. Jost am Rhyn; treasurer Dr. Brian Evans. **Council:** BC representative Dr. Christiane Armstrong; AB representative Dr. Louis Kwantes; SK representative Dr. Tracy Fisher; MB representative Dr. Christopher Bell; ON representative Dr. Timothy Arthur; QC representative Dr. Enid Stiles; NB representative Dr. Liane Nelson; NS representative Dr. Trevor Lawson; PE representative Dr. Erin MacDonald; NL representative Dr. Margaret Brown-Bury; FMV/AVC representative Dr. Marie-Claude Blais; OVC/WCVM/UCVM representative Dr. Karen Machin; SCVMA representative Ms. Kate Rundle; Registered Veterinary Technologists and Technicians of Canada representative Ms. Lois Ridgway, RVT.

IT'S A *WILD* WORLD

“But especially he loved to run in the dim twilight of the summer midnights, listening to the subdued and sleepy murmurs of the forest, reading signs and sounds as a man may read a book, and seeking for the mysterious something that called—called, waking or sleeping, at all times, for him to come.” —Jack London, *The Call of the Wild*

**T**he water was silver with hints of orange still spilling over from the east, as if the remnants of sunrise were trapped in the low-lying clouds. I turned to look behind me and strands of my hair pulled free from my toque, stinging my cheeks as the cool wind whipped them about my face. My eyes followed the foamy wake from the Zodiac I was driving, drawing rippling lines in the ocean's surface, to several kilometres beyond, where the dark, forested coastline of Graham Island contrasted starkly with the glinting water. Scanning east, the coast ended and there was just open sea. My eyes continued north over the tens of nautical miles of saltwater until I could barely make out, if I squinted, the bright white peaks of the Alaskan panhandle. Glancing ahead again, I corrected my course a bit before repeating my survey of the surroundings. I drew a deep breath. Smiled to myself at the taste of salt on my tongue. I had grown up on this little island, and I was more at home in the rain, the damp moss of its rainforest, and on the restless north Pacific that surrounded it, than I ever would be walking into an urban cafe or a university.

Just a couple of short months before, as I finished my second year at veterinary school, I had debated intensely with myself about what I should do for the summer. I thought I should probably work in a clinic, get more veterinary experience, and learn clinical skills before I was thrown into this profession with a “Dr.” in front of my name and a feeling of inadequacy. . . But I was mentally and emotionally exhausted; the second year of veterinary medicine had been the hardest thing I'd ever done, and I desperately wanted some wide-open space and one last summer on Haida Gwaii. I already had practicums lined up for my third-year summer, so this would truly be my last summer job. So I did go back. I worked as a dockhand at a fishing lodge. I drove a lot of boats, cleaned even more boats, slung fish around, and I laughed and joked with my co-workers when the sun shone and complained bitterly along with them when it was raining sideways. I treated every customer service interaction as communications training for my future veterinary career—or so I liked to tell myself in the hope that at least one of my dockhand skills was transferable to medicine. And I rested, my mind finding peace in the stillness only granted by isolation and the wilds of the world.

Thinking about all this on the Zodiac that day and looking northward made me wonder how Robin, a close friend from my class, was doing. She had also gone seeking wide-open spaces this summer, but in the arctic tundra instead of the Pacific Ocean.

Robin Owsiacki, from Victoria, had taken a job as a research assistant for the summer. Alongside a microbiology PhD student, Kayla Buhler, she was conducting field work for Dr. Emily Jenkins. Dr. Jenkins is a veterinary parasitologist at WCVM, and the project was studying *Trichinella*, a zoonotic pathogen, in the arctic foxes of northern Nunavut. Robin was living in a tent for the summer at a tiny research station on an island in Karrak Lake, part of the Queen Maud Gulf (Ahiak) Migratory Bird Sanctuary and 250 kilometres from the nearest human settlement, Cambridge Bay. She said when she arrived in the arctic that the dichotomy between its hostility and beauty was unlike anything she'd ever seen.

“Upon arriving in May, there was still several feet of snow and ice covering the land. Without a tree line or mountains, all you could

see was vast whiteness for kilometres. And when the cloud cover descended, the light became so flat you couldn't make out where the land ended and the sky began, making it incredibly difficult to navigate. Despite what initially appeared as a barren landscape, life still somehow found a way to survive. Even during bone-chilling winds and snowstorms, northern caribou continued to forage for lichen. Arctic foxes continued to dig out their dens. Grizzly bears continued to scavenge for food. And soon enough (mid-June), the snow and ice began to melt, and the landscape completely changed. With the snow gone and lakes unfrozen, a totally new terrain was unveiled. What once were mounds of snow turned out to be glacial eskers; what was once barren rock became covered by grasses and wildflowers. Fox pups emerged from their dens, snow geese and Ross's geese finished their northerly migration to nest by the thousands, and then the mosquitoes came. . . .”

Fox pups were an important feature of the region and the season, as it was Robin's and Kayla's job to take blood samples from fox pups from as many dens as they could find. Accomplishing this in the land of the midnight sun made for a very interesting routine indeed, which Robin described to me:

“Wake up around 11 AM. Exit tent quickly to either 1) avoid the gale force winds that will blow snow through your tent door (spring) or 2) avoid swarms of mosquitoes trying to get through your tent door (summer). Greet other researchers in the main cabin, forage for some food in the food cabin or eat leftover breakfast from earlier risers. Go over the plan for the day with your team. Have some tea. [A highly important part of Robin's day no matter where she is.]

“Around 2–3 PM, start getting ready for fox trapping. During the spring, layer up with warm clothes! Make your lunch and dinner. Remember to bring hot tea. And hand warmers. Pack up the sled with tent, blankets, fox trap, fox bait, and medical supplies needed for sedating foxes/blood draws/ear tags. Get the snowmobiles warmed up.

“4 PM: Drive the snowmobile and equipment to your trapping site (usually a 15–30 minute drive away). Make sure not to get lost. Set up fox trap and tent. Hunker down in tent while watching the trap for the next seven hours. If you catch an adult fox, woohoo!

“11 PM: Pack up tent and trap; snowmobile back to camp.

“12 AM: Put away all equipment, spin blood samples down, make dinner, unwind.

“3 AM–4 AM: Retire to tent. Repeat!”

Once the weather warmed, they couldn't use snowmobiles to get around, so instead they had to wade alongside or drive a tiny aluminum skiff through the shallow lake, still filled with chunks of ice, to get off the

island and then hike to the dens. On one such trek, an 18-kilometre one at that, Robin and Kayla had been trying to trap pups at a specific den for several days. It had been raining the whole time, and the women were feeling miserable from the cold and wet, as well as the slow sampling. Hiding out in their blind waiting for fox pups to come out of the den had never been so unremarkable . . . until a grizzly bear emerged not 50 metres from their tent. There was a scramble, at first for cameras in amazement at what they were seeing and then in realization of their peril, the shotgun. The two hollered bloody murder at the massive carnivore, trying to scare it off, while Robin shakily aimed the gun, hoping the bear would take the hint and leave without her needing to shoot. Fortunately, it decided they were too noisy to be bothered with and eventually stopped heading toward the tent, turned, and meandered away. Kayla and Robin hastily decided they were done for the day and hiked back to camp.

Camp life had many other peculiarities, including the chores like cleaning the “honey bucket,” which I'll leave up to your imagination to figure out, and fixing things, especially the all-important tent that was Robin's shelter, protection, bed, and little piece of home for the summer. Group meals were also interesting, being coordinated with whoever was currently sharing the research cabin, which included a BBC film crew at one point. Robin said, “It was quite a study of human nature as well, living with complete strangers in a remote environment. I loved being in a place where there was very little sign of human settlement. It made me happy to know that there are still relatively untouched places in the world.”

Coming back to Saskatoon, Robin said it took her a while to get used to the sounds of cars and appearance of buildings and roads again—it was overwhelming after the desolation of the arctic tundra. Robin went on to help analyze the results of her field work, created a research poster, and presented her findings. She's currently writing a research paper on the project that's she hoping to get published. When I asked Robin why she was drawn to this position, she said it was for a number of reasons: the timing was good (she also felt she needed a break from medicine after second year), she's always had an interest in working with wildlife, and she'd wanted to explore more of Canada for some time but found that other things had always come up to prevent it.

At the end of the summer when we compared notes on our outdoor adventures, I realized we'd gone looking for similar things in our work and for similar reasons. It also made me realize that I have made friends with some phenomenal people at veterinary school, friends I never would have made anywhere else. We'll go on to separate adventures after this crazy whirlwind that is veterinary school, but no matter how many years go by, I'll be able to call them up and ask how their day was and hear some amazing things—it's a wild world after all, but spending time on the ocean with sea lions and orcas, or on the tundra amid foxes and muskoxen, is a necessary reminder that it can be wild in good ways. **WCV**



Robin gently restrains a wild fox pup for blood sampling.



Reina Gabriel Fennell, WCVM class of 2021, grew up on an acreage on Haida Gwaii surrounded by marine and forested wilderness, which started her on her journey of getting as many experiences with different species as she could on the islands, in other parts of Canada, and abroad.

She completed two years of a BSc in bioveterinary science at Dalhousie University's Faculty of Agriculture before being accepted into WCVM in 2017. After graduation, she would like to be a large animal veterinarian with a focus in equine medicine and surgery.

West Coast Veterinarian's "A Year in the Life" is a four-part column written by one veterinary specialist about one topic that has four distinct life phases. Through the course of the year, each instalment highlights how this topic affects animals at a certain life stage and what veterinarians should know about how to treat it. This year's focus is lameness.

# DIAGNOSING LAMENESS IN ADULT DOGS

BY GEOFF HUTCHINSON, MS, DVM, Dipl. ACVS

**B**illy is a two-year-old female spayed Bernese mountain dog who was previously evaluated and treated by the surgery department for elbow dysplasia as a growing puppy. She has done well following her elbow surgeries but has now returned for further evaluation (see "Diagnosing Lameness in Dogs 6 to 12 Months Old" WCV issue 36).

During her initial evaluations at nine months old, Billy presented for a history of exercise intolerance with no apparent definitive lameness. She was observed to have a narrow-based conformation of both her front and hindlimbs. A short empirical treatment with NSAIDs had resulted in much improved exercise tolerance and comfortable behaviour. Radiographs indicated bilateral elbow dysplasia and bilateral hip dysplasia with early osteoarthritis of both hips and both elbow joints. Given that there was already arthritis present in the hip joints, double and triple pelvic osteotomy procedures were not good options to treat her hips, and her elbow joints were given priority.

Arthroscopic evaluation of both elbows revealed fragmentation of the medial coronoid processes with secondary damage to the humeral trochlear cartilage ("kissing lesions"), but the lateral compartments of her joints were confirmed to be healthy. The fragments were removed, and PAUL procedure was performed—first on her most clinically and arthroscopically affected limb, and then after eight weeks, on her second limb. Billy was recovered gradually over the four months following her PAUL procedures with increasing leash-controlled walks and physical therapy to assist recovery of strength, comfort, and range of motion. The physical therapy regimens were helpful in maintaining range of motion, comfort, and muscle mass in her dysplastic hip joints.

At 15 months following the PAUL procedure, Billy is now a young adult. She seems to have much improved comfort on the forelimbs and wants

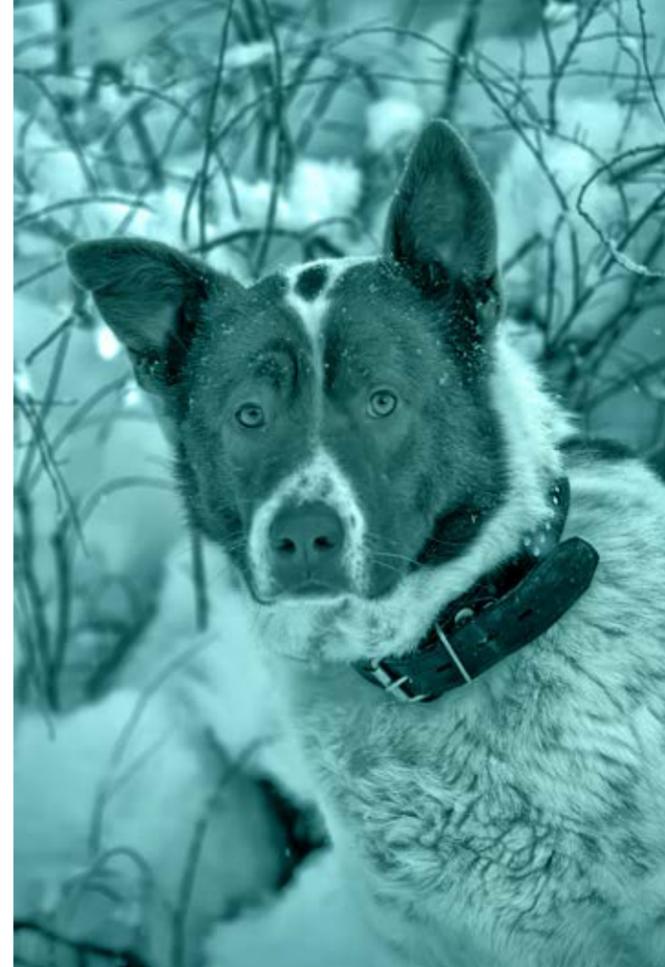


PHOTO BY EVIDOHA\_SPB / SHUTTERSTOCK.COM

longer walks and play times, but she still seems to tire more easily than expected, and the day following higher activity, she "pays for it" by being too stiff to rise. She is much better when treated with an NSAID. On evaluation, her forelimb stance is more broad-based than her initial presentation as expected following PAUL procedures. Although there is some mild, persisting periarticular thickening of the elbow joints, there is good comfort overall. Her hindlimbs continue to be narrow in stance, with the position of her feet medial to that of her hips at a stand and at a walk. When moving, she has a rolling gait to her hindlimbs—she swings her legs in a circular pattern to avoid flexion of her hips. On examination, she has moderate bilateral hindlimb muscle atrophy, and although there is no palpable laxity in her hip joints, there is mild palpable crepitus and discomfort when they are manipulated. Billy's knee joints are examined thoroughly and there is no palpable effusion, periarticular fibrosis, or palpable instability.

Billy is sedated for radiographs and palpation of her hips and stifle joints. The stifle joints do not have any palpable instability, and radiographs show no indication of effusion or degenerative joint disease (DJD). However, Billy's hip joints show considerable progression of the early arthritic changes noted when she was a growing puppy. Both of Billy's hips have incongruency between the femoral head and acetabulum. The DJD that was initially noted as a mild

"Morgan's Line" of osteophytes along the joint capsule has progressed to thickening of the femoral neck, distortion of the femoral head shape, osteophytes along the acetabular rims and femoral head, and bony filling and sclerosis of the deep acetabulum. Muscle mass is evidently reduced on radiographs compared to what is expected in a dog of this age and breed.

I consult Billy's clients to give my assessment and all of her treatment options. I advise that my examination and radiographic evaluation indicate progression of arthritis in Billy's hips secondary to her dysplastic/incongruent hips. The changes correlate with the described clinical history of exercise intolerance, and the improved comfort when treated with NSAIDs suggests that the problem is likely causing chronic pain. The loss of muscle mass in her hindlimbs further supports this assessment. I did not find any indication of cranial cruciate ligament (CCL) rupture, which is important as, if there was CCL disease, I would recommend treatment and recovery of the CCL ruptures before any surgical intervention for the hips. I advise that I expect the DJD of the hips to continue to progress over time, and that Billy will likely become more reliant on pain medications for comfort. I discuss non-surgical options including weight control, low-impact exercise such as swimming, and regular sessions with the rehabilitation department to maintain muscle mass and hip range of motion and to assist with secondary discomfort associated with iliopsoas tendonitis and lumbar muscle spasms.

Surgical treatments for hips with this degree of degeneration would be considered salvage treatments—i.e., they are not intended to restore the joint to normal but rather to maximize improvement in comfort and function. The most definitive treatment for Billy is total hip replacement (arthroplasty). This procedure involves complete replacement of the acetabulum and femoral head/neck with synthetic components. Hip replacements in dogs have been available for about 40 years, with the latest generations using extremely biocompatible materials (titanium and hydroxyapatite) with components designed to have minimal wear over the lifetime of the implant and no use of bone cement with its associated complications. The implants are expected to provide pain-free function for

the lifetime of the dog. I discuss with the clients that the goal of total hip replacement (THR) is to eliminate discomfort from arthritis and joint laxity and to re-establish normal joint function and range of motion.

Because of its complexity, this procedure has greater expense and potential for complications than other options. Although complications such as fracture, infection, or dislocation of the implant are rare, if they occur, additional surgery is usually required to resolve them. Once the patient is fully recovered and the implant is integrated into the bone (approximately four months), Billy would be expected to be comfortable with activity and would likely be able to achieve an athletic lifestyle. Surgical recovery involves exercise restriction for three months with gradual increased use before allowing a full return to activity. Given the serious complications that can occur if the implant becomes infected, Billy would require screening for skin, ear, or urinary infections. If found, these would have to be resolved before surgery, and if infections occurred following implant placement, she would need to be treated promptly.

An alternative salvage surgery discussed as an option for Billy that has lower expense, recovery time, and complication potential than THR is femoral head ostectomy (FHO). This surgery involves excision of the femoral head and neck without inserting synthetic components. The goal of this procedure is to reduce discomfort associated with movement of the arthritic hip, but as a normal joint anatomy is not re-established, the hip joint is expected to have diminished function compared to a normal joint or prosthetic hip from THR. I explain that FHO relies on the remaining muscle and tendon insertions

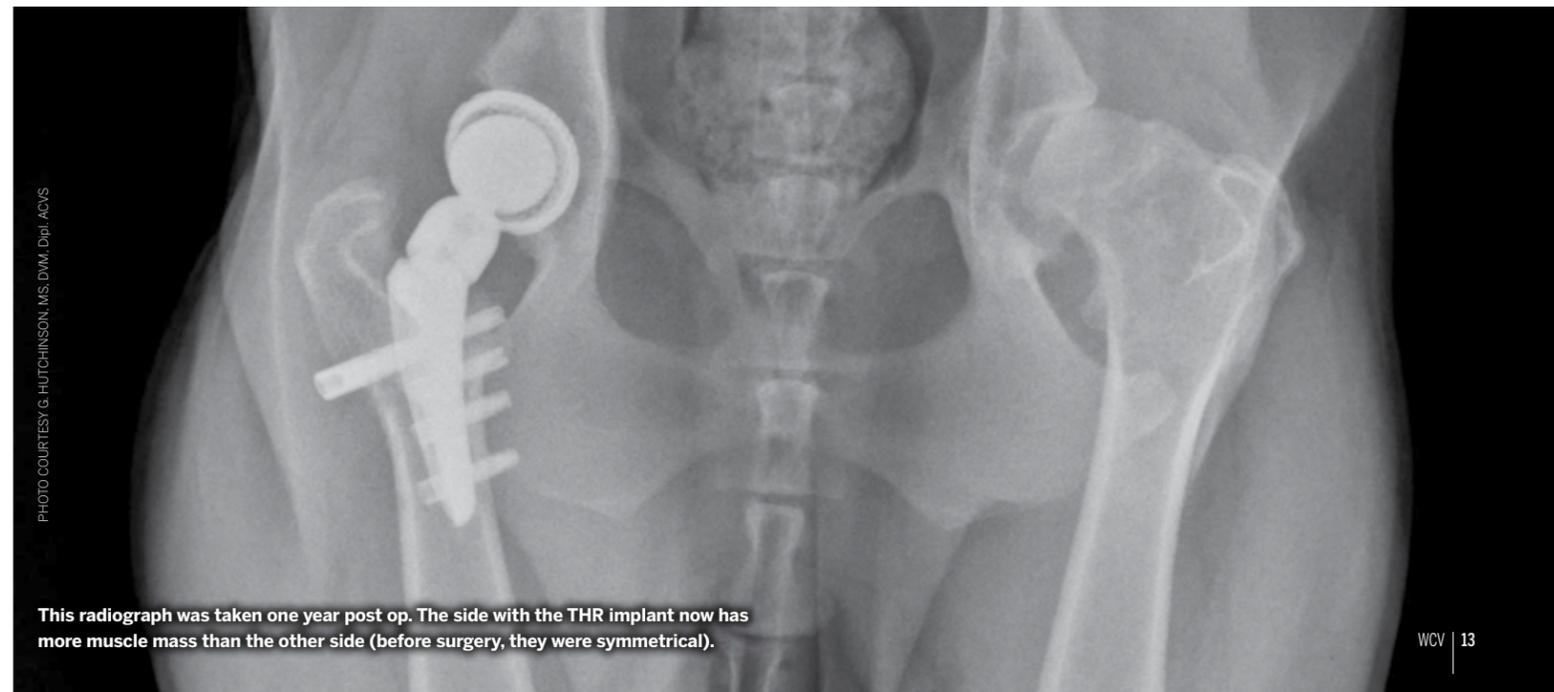


PHOTO COURTESY G. HUTCHINSON, MS, DVM, Dipl. ACVS

This radiograph was taken one year post op. The side with the THR implant now has more muscle mass than the other side (before surgery, they were symmetrical).

**“SURGICAL TREATMENTS FOR HIPS WITH THIS DEGREE OF DEGENERATION WOULD BE CONSIDERED SALVAGE TREATMENTS—I.E., THEY ARE NOT INTENDED TO RESTORE THE JOINT TO NORMAL BUT RATHER TO MAXIMIZE IMPROVEMENT IN COMFORT AND FUNCTION.”**

surrounding the proximal femur acting essentially as a sling to allow movement of the hindlimb by establishing a false joint. I advise the clients that following the FHO procedure, to assure the best outcome, they would have to be committed to following up with home (and ideally formalized) physical therapy regimens to appropriately establish the false joint. I advise that although THR may be performed when clinical signs remain mild, because FHO has a lower expected clinical function than THR, I usually wait until medical management is progressively failing.

We thoroughly discuss Billy's circumstances. Because both hips are similarly affected, there is a good chance that she will eventually need surgery on both hip joints to establish the best return of comfort and eliminate reliance on pain medications. I discuss that to reduce patient morbidity, I have a strong aversion to performing major orthopedic procedures on two limbs on the same day and recommend choosing the most painful limb to start. A procedure on the second side would routinely be performed at a later time—once there was recovery from the first. In my experience, medium-sized and larger dogs have a difficult time re-establishing normal exercise tolerance with bilateral FHO. One option to reduce the cost if bilateral THR is not an option for the client is to perform THR on one leg and then to consider FHO on the second limb at a later time once recovery is complete. In certain cases, dogs will compensate well enough after THR on the first limb that they may not need a second procedure for years or even a lifetime.

The clients considered their options and decided to schedule Billy for a THR procedure in the near future. [WCV](#)

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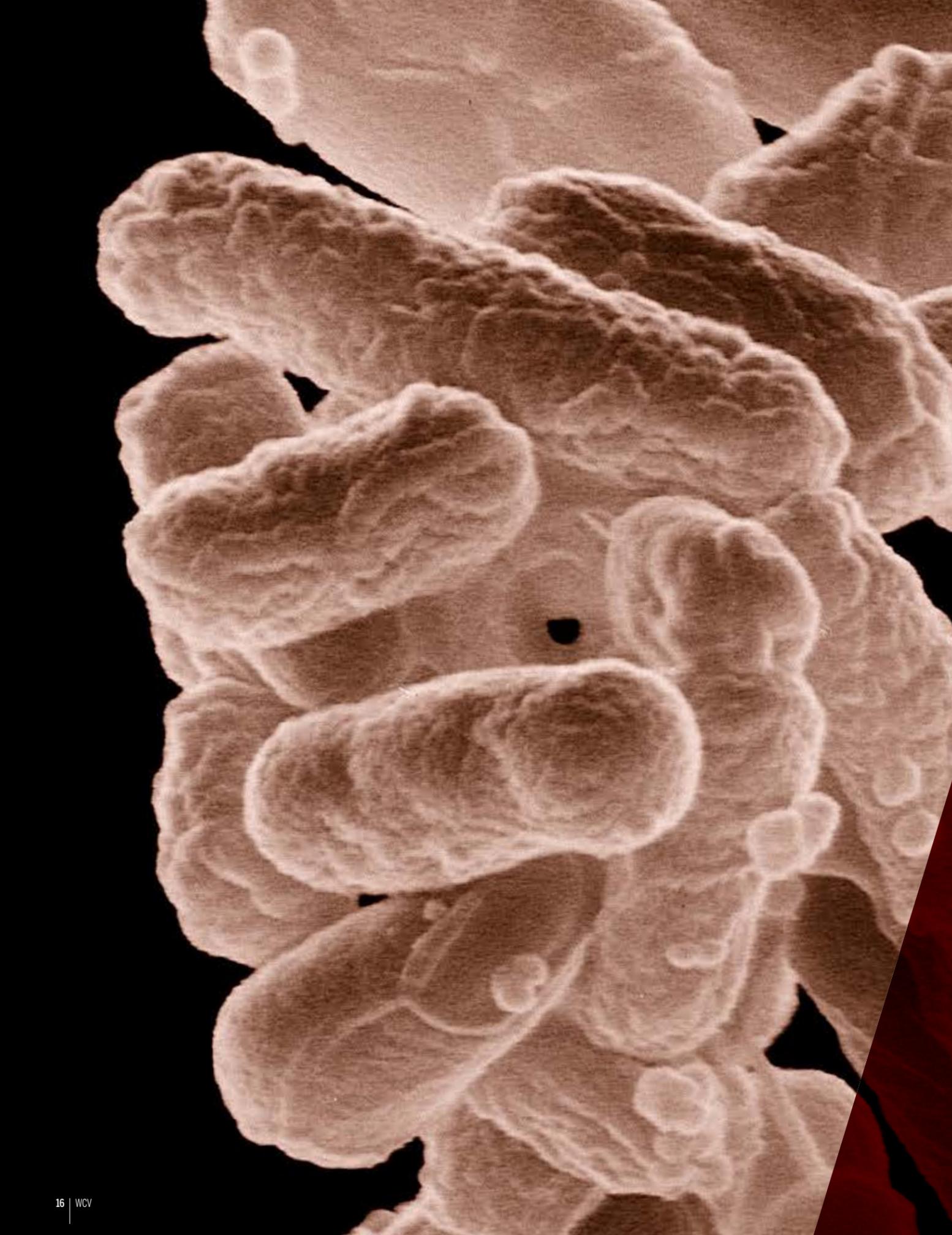
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# GUT FEELING

BY SUSAN FORD, DVM, Dipl. ACVIM

## WHAT IS THE INTESTINAL MICROBIOME AND WHAT DOES IT DO?

**T**he intestinal microbiota, which has been referred to as a “virtual organ,” is defined as all living organisms that live in the gastrointestinal tract. This dynamic community of microbes is a living, changing ecosystem along the length of the gastrointestinal tract. This highly complex microbial load is estimated to be in the trillions and contains approximately 10 times as many cells as the host body and 100 times as many genes.

This complex relationship is mostly of mutual benefit. Bacteria benefit from a stable habitat that is rich in energy from the food ingested. The host benefits from access to energy from the fermentation/digestion of compounds such as cellulose that would otherwise be unavailable. The microbiota also provides metabolites including short-chain fatty acids and vitamins. The commensal bacteria also compete with incoming foreign microbes, helping to prevent pathogen colonization. This may simply be through competition for resources, or it may be through metabolic byproducts that act by decreasing luminal pH and inhibiting the growth of some species, competing for binding sites on epithelial cells, or even displacing attached pathogens.

The relationship between host, environment, and genetics is complex. A “normal” individual has a rich,

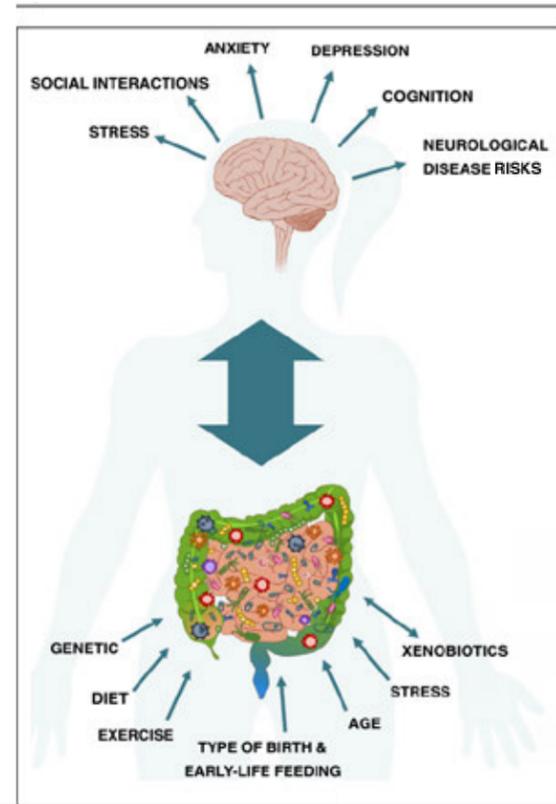
varied population of microbes that is resilient to acute perturbations and maintains “balance” even through changes in diet, environment, and stress level, and the ingestion of xenobiotics. Dysbiosis is defined at this time as an altered composition of the bacterial microflora. This imbalance may be in the function of the bacteria and their metabolic products or in their relative populations.

The advancement of scientific techniques that allow for rapid parallel sequencing of DNA from all microbes present in a community and development of sequencing libraries has allowed for new opportunities for research.

Quorum sensing is a method in which gram-positive and gram-negative bacteria influence their surroundings by regulating gene expression in response to fluctuations in cell population density. Quorum sensing bacteria produce and release chemical signal molecules to regulate a diverse array of physiological activities related to symbiosis, virulence, motility, sporulation, and biofilm production. Cell-to-cell communication occurs within and between bacterial species, and some bacteria have been shown to secrete microcins, which are antimicrobial peptides that are involved in microbial competition within the intestine.

PHOTO BY ERIC ERBEL. DIGITAL COLORIZATION BY CHRISTOPHER POOLEY, BOTH OF USDA, ARS, EMU

**FIGURE 1:** The gut-brain axis and psychiatry.



Source: Pauline M. B. Leprun and Gerard Clarke, "The Gut Microbiome and Pharmacology: A Prescription for Therapeutic Targeting of the Gut-Brain Axis," *Current Opinion in Pharmacology* 49 (2019): 17–23. Used with permission of Dr. Gerard Clarke.

### THE GUT-BRAIN AXIS

Tremendous progress is being made in characterizing the bidirectional interactions between the central nervous system (CNS), the enteric nervous system (ENS), and the gastrointestinal tract. In fact, the gut microbiome is involved in the development of the CNS.

Alterations in host-microbiota interactions have recently been implicated as a possible mechanism (or contributing factor) in the pathophysiology of several brain disorders including autism spectrum disorders, Parkinson's disease, schizophrenia, disorders of mood and affect, and chronic pain. Considerable controversy exists over the sites, pathways, extent of involvement, and molecular mechanisms within the gut-brain axis that are responsible for these alterations. Preclinical (mouse) models suggest that the microbiota and its metabolites are likely to be involved in modulating behaviours and processes including stress responsiveness, emotional behaviour, pain modulation, ingestive behaviour, and brain biochemistry.

The brain modulates the autonomic nervous system and the hypothalamic-pituitary-adrenal axis in response to stress and thus targets the enteric neurons in the intestinal wall (ENS). The CNS can also modulate microbes by enhancing the production of antimicrobial peptides secreted by Paneth cells (present in humans,

mice, and pigs). The ENS is in constant communication with the gut microbiota mediated by a variety of signals including short-chain fatty acids (butyrate, acetate, and propionate), bile acids, and neuroactive metabolites.

A recent study based on a mouse model of autism (BTBR mice) showed a significant decrease of two of the bile-metabolizing species (*Bifidobacterium* and *Blautia*). This shift was associated with deficient tryptophan and bile acid metabolism, gastrointestinal dysfunction, and impaired social interactions. A follow-up study with these mice showed that administration of prebiotics (fructooligosaccharide and galactooligosaccharide) modified the gene expression of brain-derived neurotrophic factor in the hippocampus. This prebiotic treatment also exerted anxiolytic and antidepressant effects and reversed the behavioural and physiological impact of stress exposure of these mice.

The relationship between gut microbiota and mental health is an intriguing area of research. As part of the Flemish Gut Flora Project, the features of the microbiome were analyzed with respect to individual quality of life and depression. The butyrate-producing bacteria *Faecalibacterium* and *Coprococcus* were consistently associated with indicators of higher quality of life. People diagnosed with depression in this cohort had depleted populations of *Dialister* and *Coprococcus*; this held true even after correction for the potential confounding effect of antidepressant medication. This group also used an analytic module of fecal metagenomes and identified the microbial synthesis potential of a dopamine metabolite (3,4-dihydroxyphenylacetic acid) as correlating positively with quality of life and indicated a potential role of microbial gamma-aminobutyric acid (GABA) production in depression. Work is also being done using the ketogenic diet for refractory seizures. This diet appears to induce alterations in the gut microbiota that are necessary for its anti-seizure effects.

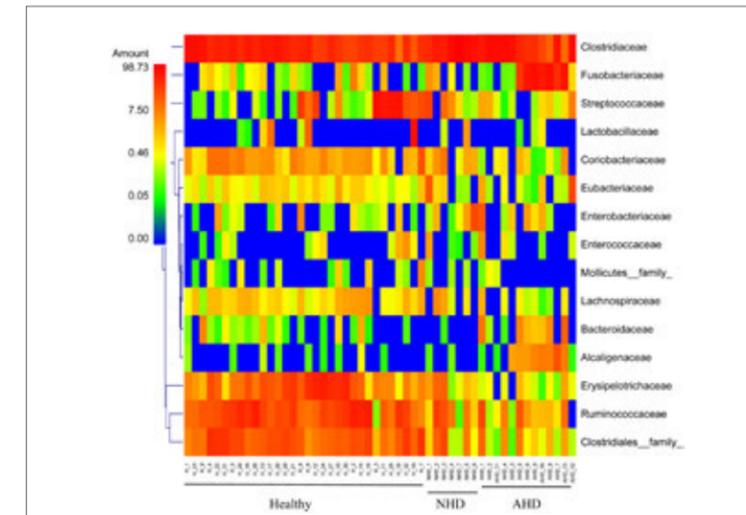
### THE GUT-METABOLISM CONNECTION

A significant population of people are overweight or obese and more than 50 per cent of cats and dogs in North America are overweight or obese. In light of the data we have regarding obesity with associated comorbidities and associated shorter life span, a lot of research is being conducted on possible interventions, and the gut microbiome is currently being evaluated for its role in obesity. Hypothesized and proven links between gut microbiota and obesity include effect on energy extraction from food, alteration in gut barrier integrity, modulation of chronic inflammation and interaction with the immune system, and production of specific metabolites that affect the gut as well as other organs including the brain, liver, and adipose tissue. Genetic and environmental factors have significant impact on the structure and composition of gut microbiome, with diet having significant influence.

Each type of macronutrient influences the gut microbiota, with changes occurring more at the metabolic (gene expression) level than at a taxonomic level. However, transient changes are observed in the gut microbiota with each macronutrient.

Dietary fibre consumption leads to an increase in butyrate-producing species that ferment these fibres depending on the type of fibre. Oligo- and polysaccharides are fermented by commensal bacteria in the colon, resulting in synthesis of short-chain fatty acids and phenolic compounds that are absorbed or metabolized into bioactive compounds. Short-chain fatty acids (propionate, acetate) serve as an important energy source, regulate intestinal motility, are enterocyte growth factors, and help maintain the intestinal barrier. A high-protein diet stimulates a decrease

**FIGURE 2:** Heatmap of the relative abundance of bacterial families in fecal samples from healthy dogs and dogs with non-hemorrhagic diarrhea (NHD) and acute hemorrhagic diarrhea (AHD).



Source: Jan S. Suchodolski et al., "The Fecal Microbiome in Dogs with Acute Diarrhea and Idiopathic Inflammatory Bowel Disease," *PLOS ONE* 7, no. 12 (2012). CC BY 4.0.

in butyrate-producing species and an increase in proteolytic species. A high-fat diet stimulates production of bile acids, which in turn selects for species with the ability to metabolize bile acids and/or induces the loss of some species due to the antimicrobial activity of bile acids. A high-fat diet has also been shown to increase the circulating inflammatory mediators.

A study of people who ate a high-fat meal (a cup of tea with three pieces of toast with 50 grams of butter) showed a significant rise in absorption of lipopolysaccharide. This is responsible for a mild transient systemic inflammatory response. In addition, high-fat diets are associated with altered mucosal immunity with increased mucosal permeability. The addition of a highly fermentable fibre (oligofructose) resulted in restoration of microflora and decrease in systemic absorption of lipopolysaccharide.

Rodent models have shown a causal relationship between microbiome and body weight. Transplanting gut microbiota from obese mice to lean mice increased the adiposity of the recipients. Germ-free mice that received gut microbiota transplants from obese or lean mice developed the body composition of the donor mice. In humans, transplantation of gut microbiota from lean donors to people with metabolic syndrome resulted in improved insulin sensitivity. Fecal transplants have also resulted in body composition changes.

A study comparing normal-weight, overweight, and obese dogs showed differences in the microbiota and metabolome profiles between groups, particularly in plasma phospholipid profiles (similar to humans and rodents).

Management of obesity involves decreasing energy intake and increasing energy expenditure—ideally a combination of the two. Consumption of dietary fibre appears to be a critical determinant for gut bacterial ecology and diversity. An increase in dietary fibre with decrease in fat intake is often used in weight reduction diets in dogs and cats. Initially this was thought to work by improving satiety while reducing energy intake; now we believe that an additional benefit is altering the gut microbiome.

## “TRANSPLANTING GUT MICROBIOTA FROM OBESE MICE TO LEAN MICE INCREASED THE ADIPOSITY OF THE RECIPIENTS.”

The intestinal microbiota can also play a significant role in the effectiveness or adverse effects of medications. Recent studies highlight the clinical relevance of biotransformations catalyzed by the human gut microbiome, including changes in the activity, toxicity, and bioavailability of therapeutic drugs. The cardiac drug digitalis has been determined to have significantly different blood levels in people with a particular strain of Actinobacteria, *Eggerthella lenta*, and then further affected by the level of protein (arginine) in the diet.

The dose-limiting effect of irinotecan (Camptosar), a common chemotherapeutic used in colon cancer, is severe diarrhea. This adverse effect has been determined to be isolated to bacterial beta-glucuronidases that reactivate the drug metabolites within the intestinal tract. Researchers have demonstrated in a mouse model that a bacterial beta-glucuronidase inhibitor protected the mice from irinotecan toxicity. In the future, this may translate into enhanced chemotherapeutic efficacy and better quality of life for patients.

The metagenomics of the stool samples of patients being treated for melanoma, non-small-cell lung cancer, and renal-cell carcinoma with immune checkpoint inhibitors targeting PD-1 revealed a significant difference between response rate and overall survival in patients with a relative abundance of a specific bacterium (*Akkermansia muciniphila*). Patients treated with antibiotics two months before up to one month after their first treatment had lower *A. muciniphila* levels and lower response rates. The mechanism of the immunomodulatory effects is unclear. Manipulating the gut ecosystem to circumvent primary resistance to this class of drugs may be a feasible target.

A pilot study in patients with non-alcoholic fatty liver disease who had a commercial probiotic administered resulted in a significant progression (more than 3 per cent) of hepatic lipid in the four-month treatment period. This fat accumulation mostly abated with a three-month “wash out” period. Researchers are looking further into possible mechanisms for this unexpected result.

### THE GUT AND IMMUNITY

Mammals are colonized with bacteria immediately after birth. There is interaction of the microflora with the host's immune system through the production of immunogenic molecules; production of metabolites

## “A DISTURBED MICROFLORA (E.G., FROM ANTIBIOTICS EARLY IN LIFE) CAN ALTER NEURODEVELOPMENT OF THE INTESTINAL TRACT . . .”

that affect cellular response; direct interaction with intestinal epithelial cells; and direct interaction with leukocytes in the lamina propria, mesenteric lymph nodes, and more distant lymphoid sites. Bacteria actively stimulate immune responses primarily through evolutionarily conserved receptors (e.g., Toll-like receptors). A healthy microflora also affects the development of the enteric nervous system. A disturbed microflora (e.g., from antibiotics early in life) can alter neurodevelopment of the intestinal tract leading to dysmotility later in life or dysbiosis in some individuals.

Certain commensal bacteria such as *Lactobacillus* can produce lactate, which inhibits the growth of *E. coli*, but the presence of the whole bacterium appears to directly inhibit *E. coli* adhesion to the intestinal epithelium. In mice, a specific strain of *Bifidobacterium longum*, strain 157f, can protect against lethal oral dosing of enterohemorrhagic *E. coli*; however, a similar bacterial strain of *Bifidobacterium longum*, JCM1222, did not provide a protective benefit.

We now know that birth by C-section or lack of access to mother's milk are risk factors for allergies, asthma, and obesity in children.

### THE GUT-KIDNEY AXIS

The gut-kidney axis refers to the metabolic interactions between the gut microbiota and the kidneys. This is thought to be a bidirectional communication between both organ systems. Initial studies in people and animal models with chronic kidney disease have reported altered intestinal microbiota. A normal intestinal microbiota is important for maintaining immune and metabolic homeostasis; therefore, dysbiosis may be a contributing factor in a variety of systemic alterations in chronic kidney disease.

Metabolic changes (e.g., uremia) in people with chronic kidney disease may affect the gastrointestinal tract through mechanisms such as intestinal hypoperfusion, change in the luminal pH, and changes in motility. These intestinal changes may then affect the relative populations of microbiota, which can lead to downstream effects on the intestinal barrier system, altered permeability, and changes in motility. This leads to increased accumulations of colonic-derived uremic toxins such as indoxyl sulfate and p-cresol sulfate as well as bacterial enterotoxin translocation, which then contributes to systemic low-grade inflammation (and can be correlated to outcome in some species).

In mouse models, it has been shown that dietary and medical management strategies commonly used in people and animals during treatment of chronic kidney disease can also cause changes in the intestinal microbiota. The changes noted in mammals with chronic kidney disease raise interest in potential therapeutic opportunities to modify the intestinal microbiota. Specific dietary fibres (gum arabic, pectins, oligofructose) may reduce some of the uremic toxins; however, additional randomized clinical trials are needed to confirm findings. Less data is available on the use of probiotics to alter microbiota or their metabolites. A recent pilot study looked at high-dose probiotic supplementation in dogs with chronic kidney disease, and the change in glomerular filtration rate over a short period of time warrants additional evaluation.

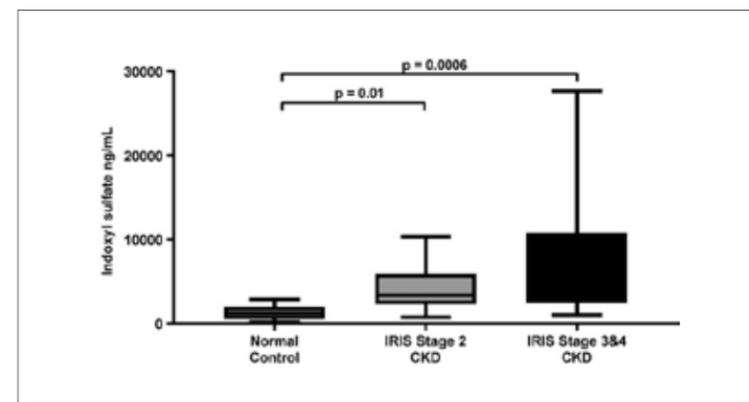
New frontiers continue to emerge as our knowledge and access to new technology come together. We now have more potential targets to specifically influence host microbiota and are just scratching the surface as to the value of diet, prebiotics, probiotics, and transfaunation. Many questions have yet to be answered regarding causality, association, comorbidity, and translation across host species. More details regarding the microbial populations down to the strain level are also needed based on the marked differences in response to specific bacterial populations. Traditional concepts in pharmacology will also need to change to account for reciprocal interactions between gut microbes and xenobiotics. **WCV**

### DEFINITIONS

<b>MICROBIOME</b>	The collective genomes of all of the microorganisms in a microbiota.
<b>MICROBIOTA</b>	A collection of microorganisms (including bacteria, fungi, viruses, archaea, and protozoa) in a particular habitat such as the skin or intestinal tract.
<b>PREBIOTIC</b>	A substrate that is selectively used by host microorganisms, conferring a health benefit.
<b>PROBIOTIC</b>	A live microorganism that when administered in adequate amounts confers a health benefit on the host.*

\*Health Canada has accepted the following bacterial species when delivered in food at a level of  $1 \times 10^9$  colony-forming units per serving as probiotics for which non-strain-specific claims might be made: *Bifidobacterium adolescentis*, *B. animalis*, *B. bifidum*, *B. breve*, *B. longum*, *Lactobacillus acidophilus*, *L. casei*, *L. fermentum*, *L. gasseri*, *L. johnsonii*, *L. paracasei*, *L. plantarum*, *L. rhamnosus*, and *L. salivarius*.

**FIGURE 3:** Serum indoxyl sulfate concentrations in healthy control cats, cats with stage 2 chronic kidney disease, and cats with stage 3 and 4 kidney disease. Cats with chronic kidney disease had significantly higher concentrations of indoxyl sulfate than the healthy control cats.



Source: S. C. Summers et al., "The Fecal Microbiome and Serum Concentrations of Indoxyl Sulfate and P-Cresol Sulfate in Cats with Chronic Kidney Disease," *J Vet Intern Med* 33, no. 2 (2019): 662–669. CC BY-NC 4.0.

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1. Emerging risk: *Echinococcus multilocularis* in Ontario Infographic, 2019 update. Ontario Animal Health Network. Available at: <https://oahn.ca/wp-content/uploads/2019/03/OAHN-Echino-multi-Update-FINAL-20190304.pdf>

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# SOCIAL MEDIA

## *WHAT VETERINARIANS NEED TO KNOW*

**BY KATHRYN WELSMAN, DVM**

**“GIVE SOME THOUGHT TO  
THE DARK SIDE OF THIS  
BRIGHT LIGHT.”**

Imagine most of you, like me, use social media. You've enjoyed keeping up with friends on Facebook, sharing opinions on Twitter, or poring over photos on Instagram or Pinterest on anything from what to cook tonight for dinner to the best ideas for updating your clinic's reception area. There's no need for me to sell you on the sociability of social media. If you don't have an online presence, you might want to create one, but before you do, give some thought to the dark side of this bright light.

To be honest, many of my peers make fun of my limited social media profile, which starts and stops at Facebook. I actually don't know how to use Instagram or even Twitter, which many of my peers think is somewhat comical especially since I'm in my 30s and therefore should be fully entrenched in all of this. So there's no judgment from me if you have been living under a rock or are stuck in the 1990s.

All joking aside, joining the digital age is really important to practice owners as they vie for new clients or a higher community profile. The sword that cuts the path to these wonderful benefits, however, is double edged: you need to know how to handle the dark side of social media, which too many of us, simply by virtue of our profession, will experience.

The SBCV Chapter regularly receives calls from veterinarians who have had a bad experience on social media and are wondering how to handle it. There are posts vilifying veterinarians or clinics, and it isn't limited to one unhappy owner. The premise of social media is that everyone gets to share their opinions, and all you need is a few unhappy people with an axe to grind before suddenly, your reputation is being smeared on the internet, usually with no basis in fact or reality.

Consider a scenario where you are personally accused of murdering a dog. And not just murdering the dog but doing so in a slow and agonizing way, all the while charging exorbitant fees and ordering unnecessary tests. This exact accusation was laid on a veterinarian a few years ago (we'll name this veterinarian "Dr. X" for privacy reasons, as this case is still ongoing).

The saga involved a client making allegations on social media, including creating a Facebook page that claimed to the world that Dr. X had murdered her dog. Then she paid to have the page sponsored and promoted to spread the word further. Dr. X and his family were subsequently threatened by people from around the world who believed the accusations, and as well, his professional and personal reputation were damaged locally.

Quite frankly, this sounds like the stuff of nightmares, and not something that could happen to a well-respected BC veterinarian—except it did, and this veterinarian is not alone. Throughout the ordeal, which has spanned nearly two years, Dr. X has had to engage many people to come to his aid. Interestingly, despite social media being the platform for this destructive behaviour, in some ways social media played the part of saviour, as he had a following of happy clients who tried to drown out the negative comments. And yet, despite the help from his followers, Dr. X was still left with figuring out how to get this person to stop the attacks.

Since veterinarians are bound by their professionalism and can't

## “YOU'D THINK THERE WOULD BE A MORE 'SOCIAL' WAY TO CALM THE WATERS.”

breach client or patient confidentiality, how can you and I defend ourselves if clients misrepresent the facts? It's a gut-wrenching feeling seeing comments on social media about yourself or perhaps a colleague. You want to respond to defend the colleague or correct the facts, but you feel as if your hands are tied. I remember seeing this attack on Dr. X several years ago as it came across my Facebook feed, and it got my blood boiling. However, listening to Dr. X recount the story in person was many times worse. He told me how emotionally draining the whole process was and said that he could see how this could have led to someone who had less support than he did to lose hope and become despondent, even suicidal. It was that bad.

While listening to Dr. X tell me his story, my stomach felt queasy thinking about how horrifying it would be to be accused in such a public way of murdering someone's dog. I found myself wondering what I would do if I were being attacked on social media, especially for something blatantly false. What *should* I do? Would I have a legal avenue to pursue? Where do statements cross the line from freedom of speech to something else?

I asked Roger McConchie, a lawyer at McConchie Law Corporation. He explained a few legal terms to me that are needed to understand the conversation further.

- **Defamation** is expression that tends to lower a person's reputation in the estimation of ordinary, reasonable members of society generally, or to expose a person to hatred, contempt, or ridicule. Expression that would cause an individual to be shunned or avoided is also defamatory.
- **Libel** is defamatory expression in writing or some other permanent form. Therefore, defamatory comments on the internet are a form of libel.
- **Slander** is an oral statement or some other form of transitory expression.

Mr. McConchie added that, “Typically, where health services professionals are targeted by defamatory expression, they may be accused of incompetence, negligence, dishonesty, rude or obnoxious behaviour towards clients, fraudulent billing, refusing to address defects in their services, et cetera. The list is endless.” In the case of Dr. X, the accusations were so horrific that they met the definition for defamation.

Knowing how bad things got for this veterinarian, I felt some relief knowing there are options. Mr. McConchie provided the following list of avenues to pursue, though personally, option A doesn't hold great appeal for me, despite knowing many of us do this:

- do nothing
- counter-speech
- warning to those responsible, cautioning against repetition
- demand for retraction and/or apology
- demand for compensation
- complaint to press council or broadcast standards council, if news media
- threaten libel litigation
- request alternate dispute resolution—arbitration or mediation
- libel litigation, in which case evaluate remedies in the nature of interlocutory and permanent injunction, damages, interest, and costs

That is a long list of options for veterinarians to navigate, so I asked him what he would recommend we do. He said, “The right option is a matter of judgment taking into account the unique circumstances of specific libel. Often, people defamed will take legal advice about the best option. Typically, health services professionals will seek appropriate legal advice about the exercise of these options and how to do so without running afoul of confidentiality and privacy restraints.”

“Act quickly if you are defamed,” he cautioned, “and obtain appropriate legal advice about your options and the most effective way to vindicate your reputation and obtain the removal of false and defamatory information on the internet.” Dr. X did just this. He engaged a lawyer who walked him through the legal steps of this type of case.

If one does decide to pursue a legal avenue, not all lawyers will take on these cases. Mr. McConchie said that “defamation is a somewhat esoteric area so it would make sense to consult someone with defamation experience.” The Canadian Bar Association BC Branch's Lawyer Referral Service has a list of names of lawyers who register defamation as an area of their practice.

Of course, this is social media, so you'd think there would be a more “social” way to calm the waters. According to Chris Olsen, vice-president of Peak Communicators, “Having a social media presence is a must these days. Many years ago a website was seen as non-essential; now it is a core element of a business. Social media is the same. Think of a client coming into a clinic and seeing pictures of happy pet owners and vets on the wall. Instagram and Facebook are that clinic's wall board but made available to everyone. Facebook is a place where happy clients can talk about what you mean to them and their pets.”



## SIGNS YOU MAY BE DEALING WITH A TROLL

- You have never heard of the complaint and you can't find evidence that they are an actual client.
- They make personal attacks trying to make you upset.
- Their goal is not resolution but to inflict harm.
- Their posts are full of bad spelling and use a lot of CAPS and bad %\$##&\* language, say “I” a lot, and use many exclamation points!!!!!!

When dealing with negative comments, remind yourself to do the following:

- Plan in advance how you will respond to negative posts. Doing this when you are not under attack can result in a more positive and thoughtful response in a crisis. Creating a strategy and template responses now, when there is no crisis, helps you during the crisis.
- Never respond when angry. Resist the urge to respond right away, and don't take it personally.
- Don't panic. Stay calm and go for a walk. Figure out how or even if you want to respond. Compose yourself and write your response off-line before you post.
- Have a person who is not involved review your response. That sober second opinion is valuable.
- Monitor the public response to the negative post. If your followers are coming to your defense, you may not need to respond except to offer help and suggest the complainant contact you.
- Make use of monitoring services; this will allow you to regularly monitor your reputation.

# SOCIAL MEDIA

## SOCIAL MEDIA DOs

1. **Think before you post.** This seems obvious, but many people cause a firestorm of negative publicity from posting without thinking. Create a post in an off-line document and think about it. If you have a gut feeling that it could be controversial, listen to that feeling. If you are in a rush to “get it done,” then don’t do it.
2. **Include visuals: video and photos.** Visuals make posts more interesting. They tell the story better than words alone.
3. **Link to positive news about you or your facts pages and encourage followers to spread the word.** Social media is a great way to spread positive news about you and your practice. Encourage happy clients to post on your Facebook page or use your clinic handle and hashtag (if available) in their posts about positive experiences. If you are featured in local media, let your followers know by posting links on social media to your web page where you have posted those news stories.
4. **Use it to monitor reactions.** Social media allows you to monitor reactions to you and your practice and can alert you to reputation issues you didn’t know about. Setting up alerts will help you learn what people are saying about you.
5. **Join the conversation.** It is called social media for a reason—it’s about creating connections and two-way conversations. Sure, at times it can seem like anti-social media, with nasty personal attacks directed at you, but don’t let that deter you. Your followers should see you as a positive and non-confrontational contributor. Stay above the fray.
6. **Stay on top of it.** It’s a good idea to monitor your platforms—and there are services that can do that for you. If someone asks a question or makes a comment, they should be acknowledged as promptly as possible. If a veterinarian or staff member is social media savvy, abiding by the “rule of thirds” is a general formula for success:
  - One-third of posts promote the clinic.
  - One-third of posts share helpful ideas and tips.
  - One-third of posts tell clinic success stories.

## SOCIAL MEDIA DON'Ts

1. **Don’t get into a fight.** Getting into a fight on social media is counterproductive. Be a positive force, show you are reasonable, and be the solution to the problem.
2. **Don’t post when angry.** Anger breeds more anger. You need to be dispassionate and clinical, as you are when you are assessing a four-legged patient. Take the time to calm down.
3. **Beware the retweet.** Retweets can get you into trouble because they can be seen by the public as an endorsement of a person and all of their previous opinions. Yes, retweet or post about the latest research from a well-respected institution, but be careful of endorsing what looks like an important news story that turns out to be written by someone with an agenda you do not support.

Mr. Olsen elaborated that, “Social media can let you know how people are feeling about you and the practice, and it gives you an opportunity to correct a concern or complaint.” He explained that, “Negative comments from real people should never be a surprise. You or your staff should be alert to those who seem unhappy and deal with the issue promptly and make note of it. If there was an emergency which disrupted your practice and made people wait, tell them about it on social media. If you had a hard day and lost a long-time favourite animal and so were less jovial than normal, talk about it. Help the public understand.”

So when you see negative comments, the first thing you should do, according to Mr. Olsen, is to match the person complaining with a client. If someone is complaining on social media, you possibly missed other opportunities to correct the situation. Mr. Olsen suggests that if you can verify the identity of the person, apologize through the same social media channel and ask them to contact you off social media for an informal discussion. “People want to be heard, and acknowledging them after they have gone public is the best first step toward resolution. If you handle the complaint well, they may go back to social media with praise for how you dealt with it—a very strong endorsement. The public is looking for how you deal with issues more than the actual issue itself, so a prompt, caring response is very powerful. Be human; show you care.”

If the comments are being made by someone you can’t verify is a client or connected to a client, you may be dealing with a troll. Do not argue with these people, as that is what they are looking for. I was a bit confused by this and had to clarify twice with Mr. Olsen that these are just random people “trolling” the internet and intentionally trying to harm you or your business without any real cause. Sadly, yes there are really people with nothing better to do with their time. According to Mr. Olsen, “There are two schools of thought on how to deal with trolls. Some people say just ignore them, consider them like an insulting letter or phone call; others say kill them with kindness. If you have a strong social media presence, your followers will likely come to your defense when they see the personal attacks and drive the troll away. Whatever you do, don’t give the troll the fight they are looking for, but be prepared to correct any false information with calming facts.”

Mr. Olsen went on to explain that it is extremely important to have a strong social media history in the event of unhappy clients making waves on social media. “In a crisis, or when you have an unhappy person, a visible history of very satisfied clients can help balance that. No one is expected to be perfect, or perform a miracle every time, but having those happy people will give the public and media something they can find easily to balance negative publicity. Building a strong following will help in a crisis because they will

come to your defense when someone attacks you.”

Throughout the legal steps of Dr. X’s case, he also hired social media experts who were monitoring this side of things, as well as using a public relations professional who helped craft responses and was engaged to speak on his behalf with the media. All of this wasn’t without a significant financial investment from Dr. X. The financial burden would be hard for many of us to handle, but Dr. X was clear that the emotional burden was a significant issue.

So now I’m left asking myself whether having a social media presence really is a good idea if it opens me up to this type of harassment. Dr. X had the answer. Drowning out the negative with lots of positive is a good way of doing things. If we are going to use social media, we do have to know how to use it properly and beware of the pitfalls. One of the bright spots of the ordeal, Dr. X said, was seeing local veterinarians come forward to provide words of encouragement, and seeing his clients rally behind him on the same social media platform was very heartwarming.

### SOCIAL MEDIA BEST ADVICE

Most of you probably have some form of social media presence—Facebook, Instagram, Twitter—in addition to your website. Social media is simply another way to

talk to your clients and show off what you do. Instagram or Facebook are really just a modern public version of the wall of photos of happy clients and their pets that often adorns the waiting area at a veterinary clinic.

### FIRST STEPS

1. **Make all personal social media private.** You should separate your private and professional lives. Your private life should be for your close friends and relatives only. So if you already have personal social media accounts, you should make those private, only allowing your closest friends to see them. Those who want to cause mischief that can affect your professional career will mine your personal social media. What is an innocent post from a social gathering or community event could be misused. Think of the politicians who post photos with people who are later discovered to be criminals or worse.
2. **Create a separate social media account for your clinic.** You need to separate the personal and private you from the professional you. This professional social media should be welcoming. It should introduce prospective clients to you and your practice, showing you interacting with families and their pets. It can show you out in the community acting in a professional basis. 

## SBCV CHAPTER'S 2020 REGIONAL SPRING CE SESSIONS

We are again taking our spring CE program on the road, visiting the communities of Abbotsford, Kamloops, Mid-Island, and Prince George.

Dr. Joe Rubin, DVM, PhD (veterinary microbiology), will lead a two-hour session on antimicrobial stewardship.

Dr. Odette O, DVM, Dipl. ACVAA, is leading a four-hour session on anesthesiology.

Dr. Casey Gaunt, BS, DVM, MVetSc, Dipl. ACVIM (SAIM), is leading a four-hour session on chronic gastrointestinal diseases in dogs and cats.

Total CE credit for each day is six hours.

Exact details and locations will be available when tickets go on sale. Please check our website for details: [canadianveterinarians.net/sbcv/events](http://canadianveterinarians.net/sbcv/events).

**SUNDAY, MAY 31**  
**DR. RUBIN AND**  
**DR. O**  
**IN ABBOTSFORD**

**SUNDAY, JUNE 7**  
**DR. RUBIN AND**  
**DR. GAUNT**  
**IN MID-ISLAND**

**SUNDAY, JUNE 14**  
**DR. RUBIN AND**  
**DR. GAUNT**  
**IN KAMLOOPS**

**SUNDAY, JUNE 28**  
**DR. RUBIN AND**  
**DR. O**  
**IN PRINCE GEORGE**

# HORNER'S SYNDROME

BY DANIELLE ZWUESTE, DVM, Dipl. ACVIM

Left

**T**he sympathetic innervation of the eye isn't something most of us spend much time thinking about—that is, until it's not working properly. Then we spend a lot of time thinking about it. First we have to recognize the clinical signs. Then we have to remember the unnecessarily convoluted anatomy so we can determine where the problem is, what's causing it, and how we are going to fix it. Oh, Horner's syndrome: loved by some, confusing to all. Somewhat perversely, this is one of my favourite manifestations of neurological disease.

## NEUROANATOMY

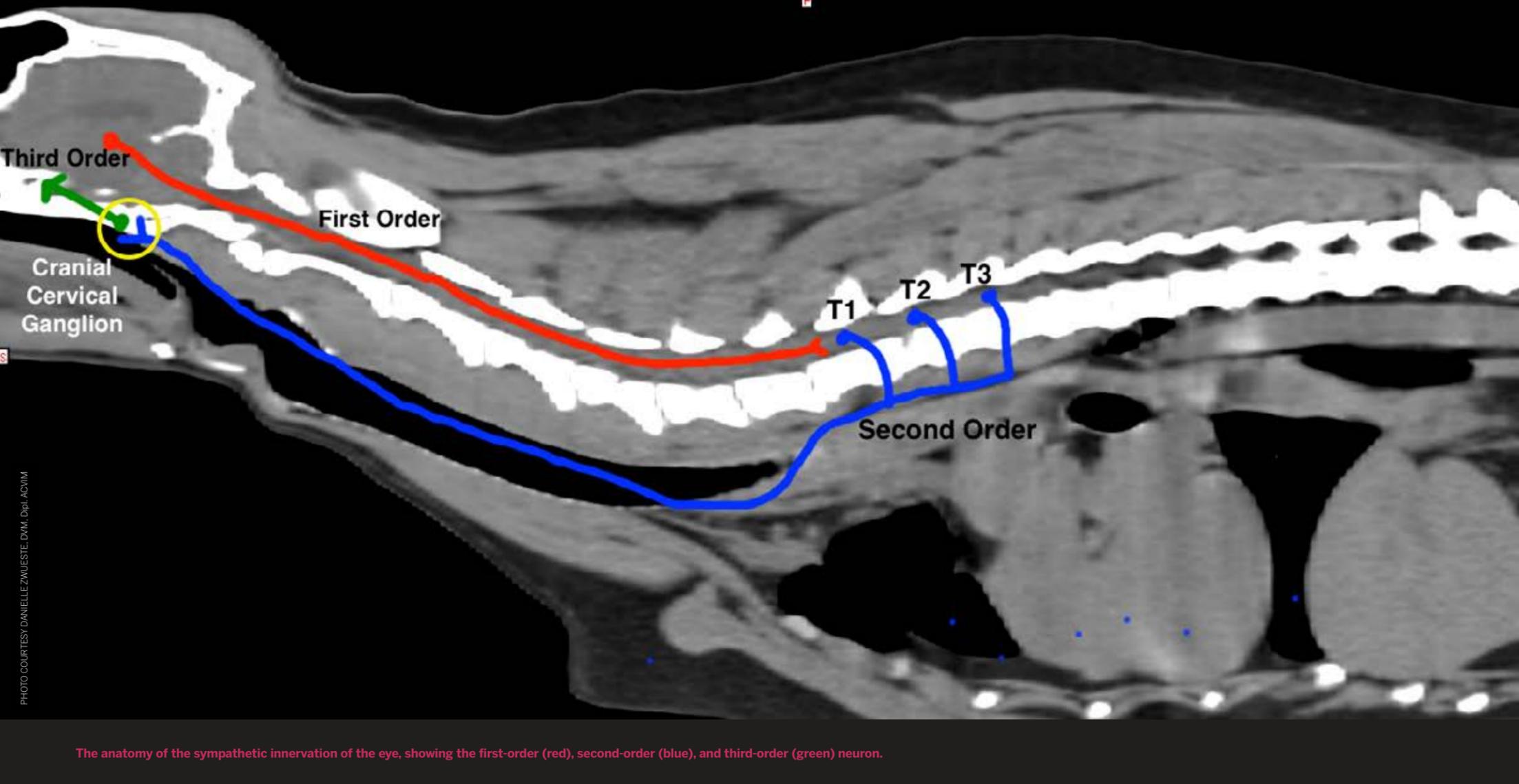
Like any true neurologist, I believe that you can't have a conversation about Horner's syndrome without first talking about the underlying anatomy. The first neuron begins in the hypothalamus, travels through the brainstem, continues through the lateral aspect of the spinal cord white matter, and terminates in the first three thoracic (T1-T3) spinal cord segments. This is known as the first-order or central neuron.

Arising from the grey matter of T1-T3, the second-order (or preganglionic) neuron then exits the spinal cord via the ventral nerve root. It travels through the thorax (the mediastinum, specifically) as part of the sympathetic trunk and continues forth into the cervical region with the vagosympathetic trunk. The second-order neuron ultimately synapses with the third-order (or postganglionic) neuron in the cranial cervical ganglion. This ganglion is located just ventromedial to the tympanic bulla. The third-order neuron passes through the skull and exits through the orbit to supply the iris dilator muscle, the smooth muscles surrounding the eye and eyelid, and, if you're a cat, the third eyelid itself. Norepinephrine is the neurotransmitter released by the third-order neuron to act on the various effector organs.

Right

"I STILL HAVE VIVID MEMORIES OF THE FIRST CASE OF HORNER'S SYNDROME I SAW AS A PRE-VETERINARY VOLUNTEER, AND I EASILY REMEMBERED IT THE NEXT TIME A CASE CAME IN."

PHOTO COURTESY DANIELLE ZWUESTE, DVM, Dipl. ACVIM



The anatomy of the sympathetic innervation of the eye, showing the first-order (red), second-order (blue), and third-order (green) neuron.

### CLINICAL SIGNS

The anatomy may be complicated, but at least the clinical signs are somewhat simple. I still have vivid memories of the first case of Horner's syndrome I saw as a pre-veterinary volunteer, and I easily remembered it the next time a case came in. The quintessential case has four key clinical signs: ptosis (drooping of the upper eyelid), enophthalmos (a sunken eye), protrusion of the third eyelid, and miosis (a small pupil). These signs are of course most easily recognized with a unilateral lesion. A careful observer might notice that the anisocoria seen with unilateral lesions becomes more prominent with dim lighting, as the miotic pupil can't dilate to the same degree as the normal pupil. When dealing with a third-order Horner's syndrome, you may also detect signs consistent with facial paralysis or vestibular disease, given the close proximity of the sympathetic pathway, cranial nerve VII, and cranial nerve VIII to the tympanic bulla.

### PINPOINTING THE PROBLEM

Once you've determined that a patient has Horner's syndrome, give yourself a pat on the back. Don't let yourself become overconfident, however. It's critical to remember that a lesion anywhere along the pathway will cause the exact same clinical signs. More detective work is necessary to determine which part of the pathway (first order, second order, or third order) is affected so that you can more effectively target



ABOVE: A cat with Horner's syndrome following a brachial plexus avulsion.  
RIGHT: A dog with idiopathic Horner's syndrome.



your diagnostics.

It may sound obvious, but before you get too deep into localizing a Horner's syndrome, make sure that you have ruled out primary ocular causes for the miosis. It's easier to miss uveitis, especially a mild case, than we'd care to admit. Perform a complete ophthalmological exam and keep a close eye out (pun intended) for other signs such as conjunctival hyperemia, aqueous flare, and corneal edema or vascularization. If you detect any of these, it's probably not Horner's and you may need to seek the guidance of your friendly neighbourhood ophthalmologist.

If you still aren't certain that the signs are due to Horner's syndrome, you could consider topical application of cocaine. Cocaine prevents the reuptake of norepinephrine by the third-order neuron, leading to pupillary dilation. With Horner's syndrome, the dysfunctional pathway can't release enough norepinephrine for the accumulation to matter, and dilation will not be noted. If you aren't up for the inescapable headaches associated with the impracticalities of keeping cocaine in your lockbox, don't worry. Most practitioners skip this step and move on to sympathomimetics.

The most common method of pharmacologically localizing Horner's syndrome is via the application of a 1 per cent phenylephrine solution. As a direct sympathomimetic, phenylephrine binds directly to the norepinephrine receptors on the effector organ. This causes a rapid dilation of the pupil (within 20 minutes) when the lesion is third order. The effect is due to hypersensitivity of the receptors secondary to an almost complete absence of norepinephrine release from the neuron. If the pupil does not dilate after the phenylephrine application, the lesion is second or first order (or it's not Horner's at all—see above). Be careful! It is possible to have both false positive and negative results. If not enough time has passed for the hypersensitivity to develop (upward of three weeks), a Horner's pupil may not dilate, and even the most normal of pupils will still dilate if the phenylephrine solution is too strong.

Hydroxyamphetamine (1 per cent) can achieve the same effect but by a more indirect route. Rather than acting directly on the effector organ receptors, it stimulates the third-order neuron to release norepinephrine. If the neuron is not intact, as is the case with third-order Horner's syndrome, it won't be able to respond. Overall, hydroxyamphetamine is considered to be less reliable than phenylephrine and isn't used as commonly.

There is not currently an effective method of pharmacologically distinguishing between first- and second-order lesions. Lucky for us, we have clinical judgment. First-order lesions occur somewhere within the brain or spinal cord and as such, you are almost guaranteed to be able to identify other neurological signs that help localize to this part of the pathway. Signs would include (but are not limited to) altered mentation, concurrent cranial nerve deficits, or ipsilateral paresis and proprioceptive deficits. To date, I have never seen a patient that only had signs of Horner's disease that ended up having a central lesion.

### DIFFERENTIALS

There is a wide range of underlying etiologies that can lead to Horner's syndrome. Those causing a third-order problem are most common and include otitis media/interna, idiopathic Horner's syndrome, and iatrogenic injury (such as following a bulla

# COMPASSION FATIGUE IN ANIMAL SHELTER WORKERS

BY ALEXANDRA PROTOPOVA, PhD



**“ON THE SURFACE, THIS DRAMATIC DIFFERENCE IN THE NUMBER OF ANIMALS EUTHANIZED SEEMS TO SUGGEST THAT WORKING IN CANADIAN SHELTERS IS BETTER FOR THE MENTAL HEALTH OF ANIMAL CARE WORKERS. HOWEVER, NEW RESEARCH . . . SUGGESTS THE OPPOSITE.”**

care contexts and ultimately results in the degradation of feelings of compassion for the patients and animals under the person's care. An employee who is suffering from compassion fatigue may be less gentle and more frustrated with animals in their care, which may directly translate to poorer animal welfare outcomes.

The concept of moral injury has only recently become a topic of discussion in the animal care field. The Moral Injury Events Scale was originally developed to investigate the impact of moral dilemmas in military personnel. The questions within the scale ask the respondent to report on feelings of betrayal by those they once trusted and perceived transgressions against others and oneself. The scale ultimately attempts to understand whether the person feels that they have done things that go against their own morals, which is a substantial human stressor.

The results of our study were striking. Overall, a third of the participants reported clinical symptoms of post-traumatic stress disorder, which is approximately five times the population average in the United States. Whereas the employees of low-euthanasia shelters showed higher job satisfaction and fewer moral dilemmas resulting in moral injury, they reported higher secondary traumatic stress and more burnout. In other words, euthanizing fewer animals was related to higher rather than lower levels of compassion fatigue.

Several possible explanations of our findings exist. Perhaps shelter workers who euthanize only occasionally find the experience more stressful than those who regularly euthanize large numbers of animals. Perhaps shelters that do not euthanize many animals place more resources and care into each animal, thus making an individual loss more salient. It is also possible that shelter workers grow more attached to animals as they stay longer in shelters with low euthanasia rates; after all, the more we get to know an animal, the more attached we become. Regardless of the reasons, our data are clear—just because a shelter has a low euthanasia rate does not mean that its employees are protected from mental health challenges.

Choosing which animal to euthanize also contributed to poorer mental health. When participants reported having a say in individual euthanasia decisions, they reported higher levels of secondary traumatic stress. These data suggest that being involved in the decision to euthanize and subsequently being the one to euthanize an animal may be harmful to employees. Our research suggests that a multi-level group approach to euthanasia decisions may protect individual employees from feeling personally responsible for the death of an animal.

As euthanasia rates in animal shelters continue to fall across North America, we must remain proactive and increase our efforts to protect the mental health of shelter workers. Research is needed to create new strategies to reduce compassion fatigue, which will not only benefit shelter workers but also protect the welfare of the animals in their care.

The original research article can be found in the upcoming special issue of *Anthrozoös* planned for December 2019. [WCV](#)

**T**he unfortunate reality is that some animals that end up in shelters will be humanely euthanized. This happens for various reasons: sometimes because of severe behavioural or medical concerns, but sometimes simply because there are too many animals in the shelter and not enough adopters. And after the decision has been made, the dedicated animal care workers are often the ones who have to carry out the euthanasia.

It has been suggested that the “caring-killing paradox”—that the people who provide daily care to the animals are also the ones who ultimately euthanize them—harms the mental health of shelter employees. In addition to the emotional and moral dilemmas of caring and then euthanizing the same animals, shelter workers also face public scorn. As a tragic result, shelter employees have extraordinarily high rates of suicide.

In North America alone, shelter workers euthanize approximately 4,060 animals per day; however, not every shelter is challenged in the same way by pet overpopulation. In the United States, approximately 4,010 pets are euthanized per day compared to approximately 50 per day in Canada, as reported by the ASPCA and Humane Canada in 2017. On the surface, this dramatic difference in the number of animals euthanized seems to suggest that working in Canadian shelters is better for the mental health of animal care workers. However, new research by PhD student Allison Andrukonis, who led the project, and me suggests the opposite.

To investigate the effect of euthanasia numbers on the mental health of animal care workers, Andrukonis surveyed 153 employees from 47 municipal and private shelters in the United States. These shelters had varying live release rates, roughly defined as the percentage of companion animals that leave the shelter alive. This variance across shelters allowed us to investigate the correlations between live release rate and mental health of the employees at those shelters.

To assess mental health, we used several established psychological assessment tools. These tools allowed us to evaluate post-traumatic stress, secondary traumatic stress, burnout, compassion fatigue, and moral injury of the shelter employees. Secondary traumatic stress is similar to post-traumatic stress, except that the caregiver is experiencing trauma vicariously through the patient. For example, caring for an animal that came from an abusive situation may trigger secondary traumatic stress in the caregiver. The symptoms of flashbacks and panic attacks are similar in both post-traumatic stress and secondary traumatic stress. Burnout happens when a person no longer feels as if their efforts are making a difference. Together, the experience of secondary traumatic stress and burnout make up the well-studied phenomenon labelled “compassion fatigue.”

Compassion fatigue has been investigated in animal

osteotomy). Causes of second-order lesions also include idiopathic Horner's syndrome, as well as brachial plexus avulsions, neoplasia (for example, mediastinal masses or peripheral nerve sheath tumours), and iatrogenic injury (for example, brachial plexus blocks or thoracic surgery). First-order lesions are the least commonly encountered, but consider causes such as trauma, neoplasia, and cervical fibrocartilaginous embolisms.

## DIAGNOSTICS

Further diagnostics are going to depend on where you have localized the lesion. For any third-order Horner's syndrome, make sure you perform a thorough otoscopic exam to evaluate for otitis. It's worthwhile performing comprehensive blood work, as there are scattered reports of Horner's syndrome developing secondary to metabolic disturbances such as diabetes mellitus. If you are dealing with a second-order Horner's syndrome, be sure to take cervical and thoracic radiographs. If you have a first-order case, or you haven't been able to identify the underlying cause of a second- or third-order case, consider referring for advanced imaging. Computed tomography and/or MRI can help thoroughly evaluate the orbit, the bulla, the cervical spinal cord, and the brain.

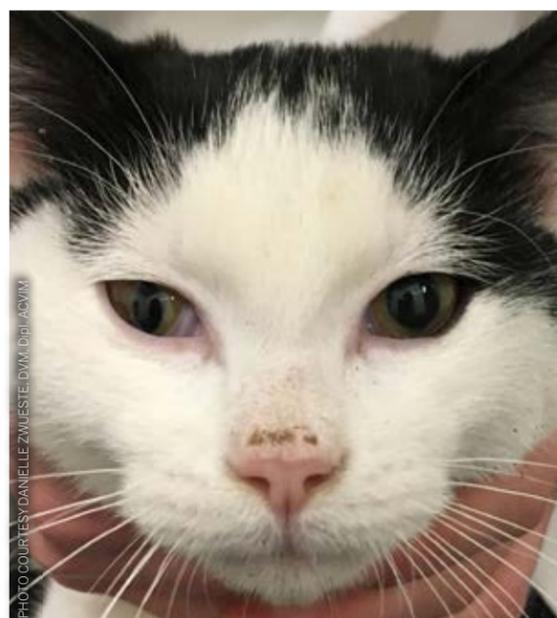
## TREATMENT

Treatment is usually targeted toward whatever the underlying cause is, rather than symptomatically treating the actual signs of the Horner's syndrome. In the rare instances where protrusion of the third eyelid obscures a patient's vision, 1 per cent or 10 per cent phenylephrine may provide short-term relief.

## CASE STUDY

A 1.5-year-old castrated male domestic shorthair presented for anisocoria. The general physical examination was unremarkable. On neurological examination, the cat had ptosis, enophthalmos, protrusion of the third eyelid, and miosis of the right eye. The right pupil dilated 13 minutes after the application of 1 per cent phenylephrine, confirming a third-order lesion. On otoscopic examination, there was mild debris and the tympanic membrane appeared to be intact. A CBC and biochemistry panel were unremarkable. A CT scan revealed material within the right tympanic bulla, and otitis media/interna was suspected. A rigid plastic catheter was used to perform a myringotomy so the bulla could be lavaged and the fluid submitted for culture. The results identified *Streptococcus canis* sensitive to amoxicillin/clavulanic acid. Oral antibiotics were started, and within four weeks, all signs of the Horner's syndrome resolved. [WCV](#)

**“IF YOU AREN'T UP FOR THE INESCAPABLE HEADACHES ASSOCIATED WITH THE IMPRACTICALITIES OF KEEPING COCAINE IN YOUR LOCKBOX, DON'T WORRY.”**



**ABOVE:** The case study cat before phenylephrine application.  
**BELOW:** The case study cat after phenylephrine application.  
**BOTTOM:** The CT scan showing material within the right tympanic bulla.





PHOTO: PUBLIC DOMAIN

A wild mule deer in BC's mountain region.

**“THERE IS UNFORTUNATELY NO RELIABLE ANTE-MORTEM TESTING FOR CWD; THEREFORE, THE MAJORITY OF CERVID SAMPLES TESTED FOR CWD ARE OBTAINED FROM HUNTER-HARVESTED ANIMALS OR OTHER ANIMALS AS MADE AVAILABLE.”**

and confirmed. It was a white-tailed doe within the city limits of Libby, Montana (60 kilometres south of the BC border and 150 kilometres south of Cranbrook). Since then, more than 30 additional cases in deer have been confirmed, as well as one case in a moose. The disease was not known to occur in the area previously, and the Montana government is assessing the prevalence and distribution of the infection. At the same time, British Columbia is carrying out an intensive sampling program in the Kootenay region to determine whether the disease is present now in BC deer.

With the urgency of the Montana focus, the BC Ministry of Agriculture has issued a general order under the Animal Health Act for this hunting season. Submission of harvested deer heads is now mandatory in the Kootenay Region wildlife management units along the Montana border (units 4-1 to 4-7, inclusive). Samples are also collected from road-killed animals or those showing clinical signs of CWD, which may include weight loss, behaviour changes, ataxia, tremors, hypersalivation, neurologic signs, and/or general

ill-thrift. The BC Wildlife Health Program encourages all hunters to provide their harvested cervid heads and to report any sightings of animals with the clinical signs above according to the directions on the website below. This community support is vital to population health monitoring. BC hopes not to find this disease but is taking proactive action to protect the health of BC wildlife.

**BOVINE TUBERCULOSIS**

Bovine tuberculosis (BTb) is perhaps more familiar to veterinarians than is CWD, as it is a zoonotic disease that is reportable to the BC chief veterinary officer and the CFIA. *Mycobacterium bovis*—a slow-growing, aerobic bacterium and the causative agent of BTb—does infect cattle but is also capable of infecting wild mammals such as bison, moose, deer, and elk. Due to the high economic impact of BTb on the cattle industry and export markets, eradication measures for controlling the disease are in place for the livestock industry.

BTb is particularly difficult to diagnose, as most animals infected with *M. bovis* are subclinical carriers. It is typically diagnosed post mortem or at slaughter. *M. bovis* is transmitted by direct contact, especially through the respiratory tract, or by indirect contact through feed

# PRIORITY WILDLIFE DISEASE SURVEILLANCE IN BC—FALL 2019

BY BENJAMIN JAKOBEK, HELEN SCHWANTJE, DVM, MSc, AND CAIT NELSON, MSc

In 2019, increasing concern about two diseases critical for cervid (particularly deer) population health has led to the BC Wildlife Health Program highlighting them for increased surveillance during hunting season this fall. Chronic wasting disease (CWD) and bovine tuberculosis (BTb) have very different etiologies but significant economic and animal health impacts. Although neither disease has been diagnosed in BC wildlife to date, both have recently received much media attention in BC, as well as throughout North America and beyond. The increase in attention and concern from wildlife managers, outdoor enthusiasts, hunters, and the agricultural community make CWD and BTb two very important diseases for veterinarians to know the facts on, despite their historic absence in BC wildlife. The following information is intended to help veterinarians answer questions from the public.

**CHRONIC WASTING DISEASE**

Chronic wasting disease is a fatal prion disease of cervids. It has been diagnosed in white-tailed deer, mule deer, elk, moose, reindeer, and red deer in six countries. Within the US and Canada, it has been found in 24 states and three provinces. The disease has not been detected in BC, but it is present in areas within neighbouring jurisdictions (Alberta and Montana).

CWD is like other transmissible spongiform encephalopathies of animals (such as bovine spongiform encephalopathy in cattle and scrapie in sheep and goats). It is caused by the misfolding of PrP<sup>RES</sup> or PrP<sup>CWD</sup>, isoforms of a naturally occurring cellular protein (PrP<sup>C</sup>). Since its original discovery in Fort Collins, Colorado, in 1967, research on CWD PrP proteins confirms the prion can be transmitted indirectly and directly through saliva, urine, feces, carcasses of infected animals, and by environmental contamination, especially of soil, as the prion will bind to soil particles and transfer to plants. The disease does not affect animals that are not cervids, so domestic livestock species are not involved in direct disease transmission. Research on the disease in cervids continues, but there is still a lack of consensus on the evidence for CWD's ability to infect humans or non-human primates. Given this uncertainty, public health experts, the World Health Organization,

and others strongly recommend that animals that test positive for the disease are not eaten.

The diagnosis of CWD is relatively simple, but is only done post mortem. The retropharyngeal lymph nodes and tonsils (in white-tailed and mule deer) and the obex of the brainstem (in elk, moose, and caribou) are collected and tested using immunohistochemistry at the University of Saskatchewan. If a positive result is obtained, backup samples are confirmed by the Canadian Food Inspection Agency (CFIA). Preliminary testing takes several weeks, and in the event of a positive result, hunters will be contacted immediately.

There is unfortunately no reliable ante-mortem testing for CWD; therefore, the majority of cervid samples tested for CWD are obtained from hunter-harvested animals or other animals as made available. Since 2002, the BC Wildlife Health Program has tested over 3,900 cervids for CWD, with exclusively negative results. BC's approach to this disease has been to provide outreach and to reduce the risk through preventative actions. In 2003, the *Surveillance and Response Plan for CWD in British Columbia* was produced and several precautionary regulations were passed to further reduce the risk of the disease entering the province. The BC Wildlife Health Program and partners updated the *Surveillance and Response Plan for CWD in British Columbia* this year. It includes a unique collaborative approach to proactive management, prevention measures, and disease response preparedness. Partners include First Nations, provincial and federal agencies, non-governmental organizations, academics, and CWD experts.

In June 2019, a clinical case of CWD was recognized



PHOTO COURTESY BENJAMIN JAKOBEK

Approximately 170 cervid heads have already been submitted to BC's Wildlife Health Program for CWD testing this fall. Many more are expected as the hunting season progresses.



or water. Managing BTb is complicated further by the pathogen's ability to cross the species barrier, making identification of a point source problematic. There is evidence of wild animals serving as endemic reservoirs of the disease: European badgers in the UK, elk in Riding Mountain National Park in Manitoba, wood bison in Wood Buffalo National Park in the Northwest Territories, white-tailed deer in Michigan, African buffalo in South Africa, wild boar in the Iberian Peninsula, and brushtail possum in New Zealand, among others. Given BTb's unique characteristics and transmissibility, wild cervids, especially deer, are considered to be potential overflow hosts for BTb. Several BTb cases have been detected in BC cattle over the past decade, the most recent in November 2018. For this latest case, the CFIA initiated an investigation with strict on- and off-farm protocols for quarantine, humane depopulation, and herd-level testing of all cattle that were potentially exposed or that tested positive.

BC is obligated to sample to ensure the disease is not present in wildlife that could act as a reservoir. Previous formal and informal surveillance for BTb has never identified the bacterium in wildlife in BC. The BC Wildlife Health Program is coordinating the wildlife response to the positive diagnosis in partnership with the BC Ministry of Agriculture, the CFIA, and other groups. Our goal is to sample enough deer to confirm

their BTb status in the Thompson region using voluntary submissions of hunter-harvested deer heads. Heads of submitted animals are dissected, and all lymph nodes of the head and cranial cervical region (retropharyngeal, mandibular, parotid, tonsils, and cervical lymph nodes) are removed and submitted for testing. Nodes are examined grossly and sectioned to look for lesions such as granulomas or abscesses that would suggest infection with *M. bovis*. All tissues are submitted for histopathology with acid-fast staining, and mycobacterial culture is performed at the CFIA laboratory in Fallowfield, Ontario.

#### LOOKING FORWARD

With cervids as the focus of two very different but important infectious diseases, the BC Wildlife Health Program is appealing to hunters during this year's hunting season to help by submitting the heads of their harvested deer for sampling for CWD and BTb. Please see the website below for the areas of concern and how to submit. The participation of hunters and collaboration with First Nations, stakeholders, partner agencies, and wildlife professionals is critical to keeping BC's wildlife healthy. Obviously, with these diseases, maintaining healthy populations of wild animals is a key One Health factor for the health of humans and domestic animals as well.

BC veterinarians who suspect these diseases, whether reported to them or observed on the farm, during necropsy, in the hospital, or while outside simply enjoying nature, are encouraged to contact the BC wildlife health biologist, Cait Nelson (cait.nelson@gov.bc.ca or 250.751.3219) or the wildlife veterinarian, Helen Schwantje (helen.schwantje@gov.bc.ca) for advice on next steps. For more information, see the BC Wildlife Health Program website, [www.gov.bc.ca/wildlifehealth](http://www.gov.bc.ca/wildlifehealth), under "Priority Diseases." **WCV**

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**Benjamin Jakobek** is a Canadian veterinary student (class of 2020) at Cornell University College of Veterinary Medicine in Ithaca, New

York. He just completed a veterinary externship with the BC Wildlife Health Program as part of his clinical year. He hopes to continue working in wildlife conservation and public health.



**Helen Schwantje, DVM, MSc**, is BC's wildlife veterinarian, working at the Wildlife and Habitat Branch of the BC government, since 1992. She graduated from the WCVM in 1981 and practised in BC in

mixed animal and zoo animal practice. In 1987, she completed a MSc in Veterinary Pathology (specialty in wildlife diseases), studying the evaluation of health status of bighorn sheep herds in the East Kootenay region. Her work with wild sheep continues, along with many other competing priorities. In her other life, she bought a farm in 1986 that is now more than 100 years old where she has a live-off-the-land hobby, raising domestic sheep and other edibles. Fortunately, her husband is a great cook.



**Cait Nelson, MSc**, is a wildlife health biologist with the BC Wildlife Health Program, based in Nanaimo on Vancouver Island. She has been with the BC Government since 2006 and has been leading

BC's chronic wasting disease program for eight years. Her work includes coordinating the regional and provincial working groups, connecting with other researchers to stay informed on new science, working with other jurisdictions to learn about management strategies, and overseeing surveillance for CWD in BC. She is dedicated to working with wildlife professionals, stakeholders, First Nations, and the public to ensure that these groups have access to current and accurate facts on CWD and that wildlife in BC is not exposed to this disease.

# CAN YOU TEACH AN OLD DOG NEW TRICKS?

BY ELAINE KLEMMENSEN, DVM

DIAGRAM 1: The Golden Circle

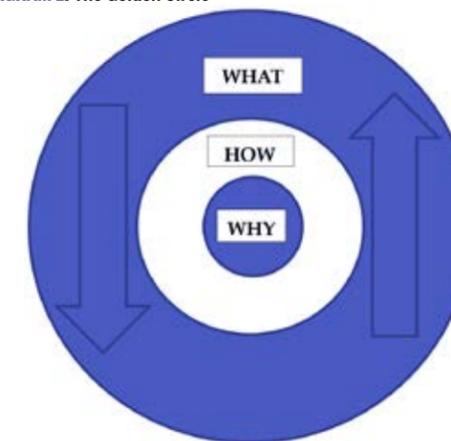


FIGURE COURTESY ELAINE KLEMMENSEN, DVM

**C**an you teach an old dog new tricks? As a veterinary professional, I hope you will agree that yes, you can teach that old dog something new. It just might require a little more patience and more enticing motivators. For me this question is not just rhetorical; it's personal. I made the decision to return to university this fall, and as I start my Certificate in Values-Based Leadership at Royal Roads University, I am excited and intensely anxious. It has been 28 years since I had to write an academic paper, and I have no idea what "APA style" stands for, let alone how to apply it. Also, what in the world is Moodle? Is it a noun or a verb? Can you use it in a sentence, "Hey, it's been a long day, but I still have enough energy to Moodle?" When I was last in school, the internet was just an idea. We used textbooks and typewriters, and if you were lucky enough to have a computer, it didn't have windows because those were something you snuck out of at night to go to a party (okay, I guess some things have not changed).

So, as I take a deep breath and dive into my courses, I find myself excited about this journey into values-based leadership. Over the year ahead, I hope to share with you some of what I learn. Simply put, values-based leadership is leadership guided by a set of moral and ethical values that speak to the greater good of the company, its followers, and the community at large. It is more than just a mission statement. It is a way of doing business that inspires and empowers employees. It has the power to change the culture of an organization, motivate behaviour,

## "PEOPLE DON'T BUY WHAT YOU DO; THEY BUY WHY YOU DO IT."

and drive economic success.

As veterinary medicine moves toward a corporate environment, values-based leadership has particular relevance and may hold the key to driving positive change in our profession. As I worked my way through the first week's assignments, I looked for ways to apply these ideas to the veterinary world. One TED talk, "How Great Leaders Inspire Action," by Simon Sinek in 2009, has particular relevance. Sinek asks the question, "Why do some leaders/businesses/governments succeed when others don't?" He points out a pattern to successful leadership that involves changing the way we approach work by placing our purpose first and how we get to that purpose second. Let me explain. The Golden Circle (Diagram 1) illustrates this idea of placing our purpose as the driving principle of our business. The outer layer of the circle is "what" we do. For example, we provide veterinary services, such as medical consultations, dentistry, nutritional counselling, and so on. The second layer of the Golden Circle is the "how" of our operations. This includes the protocols, procedures, and organizational structure of our business. The outer two layers are strongly influenced by the part of our brain that controls analytical thought and language, the neo-cortex. The centre of the circle is the "why" of what we do. What is our purpose, what are our values, and what do we believe? Why do we do what we do? The innermost circle is driven by our limbic system, the part of our brain involved in processing feelings and behaviours.

As veterinary medicine moves toward a corporate environment, values-based leadership has particular relevance and may

With respect to the Golden Circle, most of us in veterinary medicine approach our work from the outside in. Each day we come to work and are hit with a wave of demands and needs from our clients and our teams. We dive in and get to work meeting this demand, putting to work the "what we do," that we know so well and using the systems or the "how we do it," that our practices have set in place. We get the job done, but often end the day drained and exhausted. The bigger purpose, or the "why" we became veterinary professionals, is lost.

What if we shifted our perspective and started to work from the inside out? This requires digging deep and determining the values of our practice. It isn't just a mission statement like "At ABC Veterinary Hospital we strive to provide exceptional medicine and customer service." It is communicating to our teams, our clients, and our community what we hold most dear. Things like reliability, compassion, family, honesty, and gratitude. The "why" speaks to our limbic system and engages us in a shared passion. It isn't enough to just talk about it. Leaders need to live the values of an organization and by doing so, ignite passion and a sense of purpose in their employees and clients.

Sinek points out that "People don't buy what you do; they buy why you do it." If people believe what you believe, they are more engaged and work harder. Work becomes a passion, not just a job and a paycheck. By leading from the inside out, we are stimulating the part of our brain that drives behaviour. Positive leadership based on shared values drives positive change in our teams and has the power to transform our hospital culture, our job satisfaction, and ultimately our economic success. Imagine ending your day tired but satisfied. Feeling happy because you know your team did some good, and having a healthy paycheck to boot!

Our profession is at a crossroad. Whether we like it or not, the model of the small, privately owned veterinary hospital is becoming obsolete. There is a shortage in our workforce, and many people in the profession are becoming disillusioned and burnt out. It is time for change, a time to train and develop leaders who share our values, our purpose, and our passion as veterinary professionals. Change is happening so rapidly it is difficult to visualize what our profession will look like five years down the road. Moving forward, we, the veterinary team, need to let our leaders know what we want. We need to be a strong voice in choosing the best road to lead us through the challenges ahead. **WCV**

# RABIES IN BC

BY BRIAN RADKE, PhD, DVM, AND ERIN FRASER, BSc, MSc, DVM

**A**fter rabies occurred in a BC man last summer, veterinarians, physicians, and public health officers across BC and in other parts of Canada experienced a significant increase in the number of clients or patients reporting potential rabies exposures. Veterinarians across BC were tasked with assessing a record number of potential rabies exposures, sending suspect bats to the Canadian Food Safety Inspection Agency (CFIA) rabies lab, vaccinating more pets than usual, and connecting with their local public health authorities on potential human exposures. This article discusses the epidemiology of rabies in BC and the veterinarian's role in managing potential animal rabies cases.

In BC, bats are the only reservoir for the rabies virus, but all mammals, including humans, are susceptible to the bat-variant rabies virus. Over the last five years, an average of 110 specimens from BC are submitted annually to the CFIA rabies lab. Since 2004, bats account for the majority (66 per cent) of all specimen submissions from BC, and cats (13 per cent) and dogs (9 per cent) represent the next most common species submitted for rabies testing (Figure 1). The overall rabies prevalence in bats tested between 2004 and 2018 was 8 per cent (Figure 3).

## WHAT TO DO IF YOU SUSPECT RABIES

Animal rabies is reportable to the BC chief veterinary officer and the CFIA. Rabies response in BC is coordinated by the BC Centre for Disease Control (BCCDC). Veterinary clinicians play an integral role in rabies surveillance and response in BC and fulfill their duty to report this disease by submitting specimens to the CFIA's rabies laboratory (Figure 2). The BCCDC has comprehensive guidelines on rabies for use by veterinarians and clinic staff, which are available on the BCCDC website at [www.bccdc.ca/health-info/diseases-conditions/rabies](http://www.bccdc.ca/health-info/diseases-conditions/rabies).

If you suspect a rabies case or rabies exposure in an animal, it is your responsibility to carry out a rabies risk assessment, to promptly vaccinate animals exposed to rabies (regardless of vaccination status), and to collect and

**“IF YOU SUSPECT A RABIES CASE OR RABIES EXPOSURE IN AN ANIMAL, IT IS YOUR RESPONSIBILITY TO CARRY OUT A RABIES RISK ASSESSMENT, TO PROMPTLY VACCINATE ANIMALS EXPOSED TO RABIES (REGARDLESS OF VACCINATION STATUS), AND TO COLLECT AND SUBMIT SAMPLES FOR TESTING TO THE CFIA RABIES LABORATORY IF INDICATED.”**

submit samples for testing to the CFIA rabies laboratory if indicated. Your client is responsible for the veterinary fees and shipping costs, and the rabies lab will cover the cost of the rabies test in cases where an animal or a person has been exposed to the specimen. The BCCDC public health veterinarian can assist you with rabies risk assessments and advise on sample submission to the rabies lab. If a rabies exposure occurs after hours, in general, you should vaccinate exposed animals, refrigerate any samples that might be submitted for testing, and follow up with the public health veterinarian on the next business day.

If there is potential human exposure to a suspected or confirmed rabid animal, local public health authorities must be notified promptly. They will carry out a human rabies risk assessment and coordinate testing of the animal specimen. Contact your local public health authority to report human exposure to a potentially rabid animal. Contact information for local public health is included in the BCCDC's rabies guidance document, or BCCDC staff or the public health veterinarian can also help you contact the appropriate public health officer. [WCV](http://www.wcv.ca)

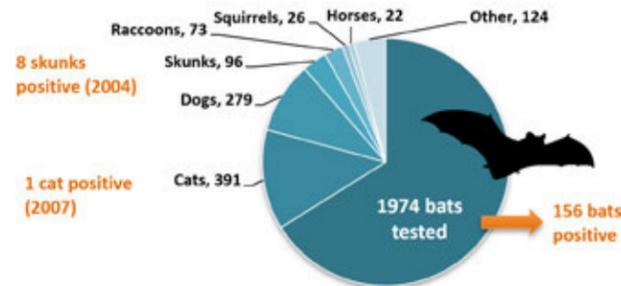


FIGURE 1: Number of animal specimens from British Columbia submitted to the CFIA rabies laboratory by species and number of animals positive for rabies (2004 to 2018).

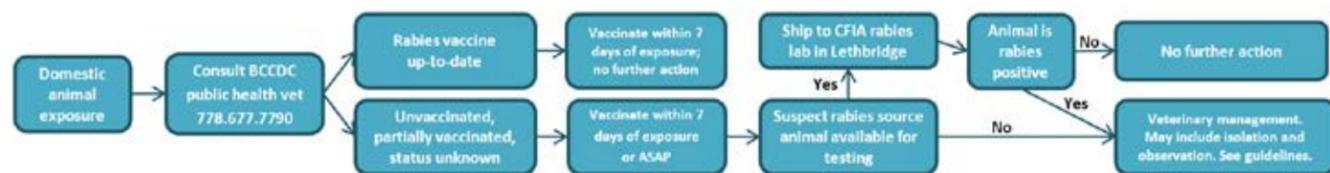


FIGURE 2: Veterinary management of animal rabies exposures in BC.

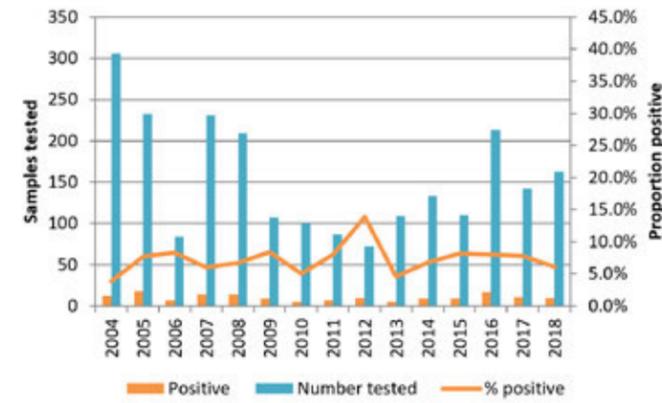


FIGURE 3: Number of bats from British Columbia tested for rabies and proportion of rabies-positive bats (2004 to 2018).



Erin Fraser, BSc, MSc, DVM, is the BC Centre for Disease Control's public health veterinarian. She received her BSc in 1993, DVM in 1998, and MSc in 1999, all from the University of Guelph. She has over 20 years of experience as an epidemiologist, public health veterinarian, researcher, and executive director. Dr. Fraser's professional interests include animal health, public health, zoonotic diseases, antimicrobial use and resistance surveillance, and food security. She co-founded Veterinarians without Borders-Canada, and has worked with interdisciplinary and multicultural teams to develop programs and projects that address public and animal health issues.



Brian Radke, PhD, DVM, is a public health veterinarian at the BC Ministry of Agriculture's Animal Health Centre in Abbotsford. Following graduation from WCVM in 1989, Brian spent five years in private veterinary practice in Ontario and the Fraser Valley with a focus on dairy herd health. Following a PhD in agricultural economics from Michigan State University, he was employed by Alberta Agriculture as a dairy cattle research veterinarian and a research economist. Dr. Radke was a public health veterinarian at the BC Centre for Disease Control for five years before joining the Ministry of Agriculture in 2011.

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PHOTO COURTESY BETTINA BOBSIEN, DVM

Cuba, a country of nearly 12 million citizens, is also home to an estimated 900,000 equines. These horses, donkeys, and mules are all working animals and are the primary source of transportation in the country. Daily, their owners depend on them.

Unfortunately, outside of the main tourist locales these hard-working equines frequently suffer from a variety of ailments and health concerns: malnutrition, parasites, inadequate farriery, and ill-fitting tack and harnesses. Any one of these issues can render a working horse's day-to-day life a misery.

You can help. Clean out your tack room, then fill an old suitcase. Did you know some airlines, such as Westjet, allow travellers to take along one extra (free) piece of luggage when the contents are for humanitarian aid? Your gently used tack qualifies.

Check out Cuba's Horses ([www.cubashorses.org](http://www.cubashorses.org)) for more information and to see their wish list of especially needed supplies. Once in Cuba, you can drop off your gifts (this term is preferred over "donations") in Havana, or simply offer them to any Cubans you see with their horses—a common sight.

Drop-off can be arranged through Cuba's Horses: [cubashorses@gmail.com](mailto:cubashorses@gmail.com). If you have questions about other equine-related items or are willing to take veterinary medical supplies, please contact Dr. Bettina Bobsien at [bettinadv@gmail.com](mailto:bettinadv@gmail.com).

Contributed by Ruth-Anne Eisler.

## FROM THE CVMA'S EMERGING LEADERS PROGRAM TWO VIEWS

STARTING OFF ON THE RIGHT FOOT IN A NEW PRACTICE

BY MELISSA PELLEGRIN-TANNAHILL, DVM

REJUVENATED IN MY VOCATION

BY JESSICA LAM, DVM

I applied to the CVMA Emerging Leaders Program to learn how to be a better leader in the veterinary field and how to inspire and create the best team possible. I am currently working in a busy, newly created emergency and specialty referral practice, and it was very important to me to start off on the right foot in as many aspects as possible.

This program far exceeded my expectations in almost every way. I wasn't sure what to expect; however, the skills we learned will help me not only in my leadership role but also in life. We learned very valuable team building exercises, what it means to be a leader, how to help inspire people (including yourself) and help others achieve their full potential, as well as exploring what everyone needs to be a successful and happy member of the team. As I implement these ideas in my work, I am excited to see the forward progression in our practice.

Being a part of the program made me really feel grateful to be a veterinarian. I realized what a truly unique position we are in with the public and how influential we can be with our patients, clients, and teammates alike. I have a new energy and am looking forward to exploring the potential that we have as a group. Everyone wants the same things for their pets, and the program made me realize that this is the same thing that we veterinarians want as well. After all, most of us are pet owners too. By focusing on making sure our team's and clients' needs are met, and by remembering that we are all working toward the same goal, we can truly deliver excellent medical care for our patients while creating a positive work environment for everyone.

**"EVERYONE WANTS THE SAME THINGS FOR THEIR PETS, AND THE PROGRAM MADE ME REALIZE THAT THIS IS THE SAME THING THAT WE VETERINARIANS WANT AS WELL."**

I encourage anyone who is looking for ways to improve their lives, their clinical practices, or their careers to apply to this program. I have always felt very grateful to be a part of such an amazing and caring profession, but this program helped inspire me to be a better veterinarian as well as a better leader. It made me realize the influence that we potentially have over others. Each of us has a strong voice, and we all have the ability to positively influence not only ourselves, but also our teams and our profession as a whole. **WCV**

Thank you to the CVMA and the CVMA-SBCV Chapter for giving me the opportunity to participate in this year's Emerging Leaders Program and attend many continuing education lectures at the World Small Animal Veterinary Association (WSAVA)/CVMA conference. I heard about the program from a veterinarian who had participated in it the year before and highly recommended it. Dr. Sarah Armstrong (past SBCV president) reaffirmed the excellent testimonials. Before attending, I was in dire need of rejuvenation in my chosen vocation. I was getting increasingly frustrated and apathetic about the profession as I continually heard stories of burnout and unhealthy work boundaries and relationships while experiencing mental health issues that stemmed primarily from work stress. This was far from how I had envisioned my career during veterinary school, and I was seriously considering leaving the profession to pursue something else. What turned things around for me was the Emerging Leaders Program with Dr. Rick DeBowes, further cemented by a volunteering trip with the Canadian Animal Assistance Team.

It was obvious throughout the two days of the Emerging Leaders Program that Dr. DeBowes was slowly but surely injecting motivation into the participants. He challenged each one of us to think deeply about our core values and how they can translate to our everyday practice in the clinic. He cautioned against participating in support groups (some of them online) in a negative way by lamenting how difficult our situations are. While there is a place for that, he advocated instead for building and restructuring our professional life in a positive and productive way, starting with altering our own paradigm and using those leadership skills to influence those around us. Leaders are not simply born; leadership skills can be learned through training and practice. And leadership of self is the most important, which is where establishing our own core values comes into play. From there, Dr. DeBowes encouraged us to be open-minded about possibilities by suspending judgment, adjusting our perception, and taking risks in order to grow. He pointed out that a good leader does not only give directions, as that has limited influence, but goes beyond to inspire people to think outside the box and come to understand the leader's vision and core values on their own. Through the sessions, he taught us the framework to further develop our leadership and communication skills, and I left feeling empowered to make positive changes in my work environment.

**"I LEFT FEELING EMPOWERED TO MAKE POSITIVE CHANGES IN MY WORK ENVIRONMENT."**

The Emerging Leaders Program was an amazing experience that helped invigorate my passion and motivation to be the best veterinarian I can be. I believe that all veterinarians can benefit from leadership training to help them build positivity, productivity, and fulfillment in their workplace. **WCV**

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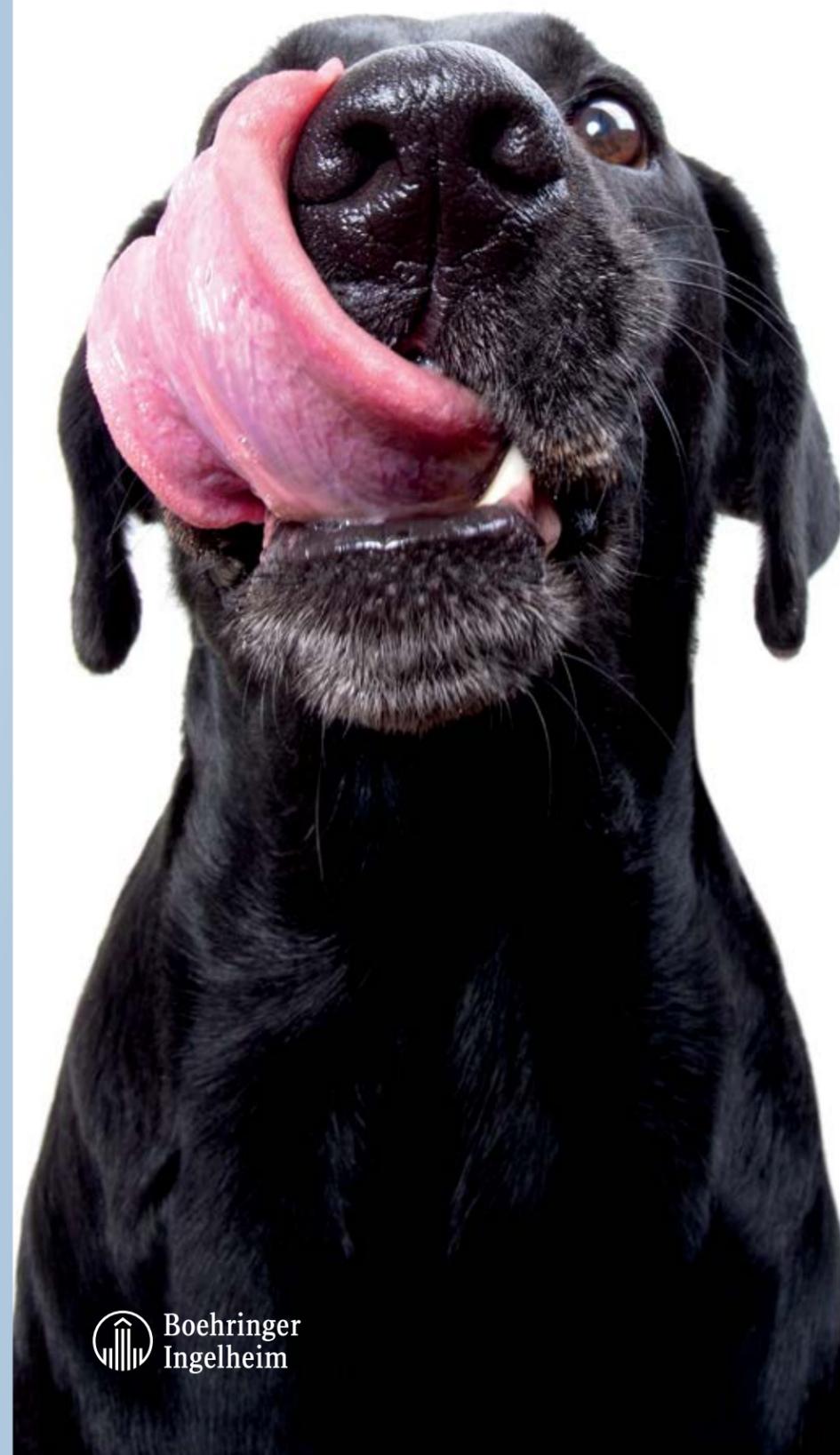
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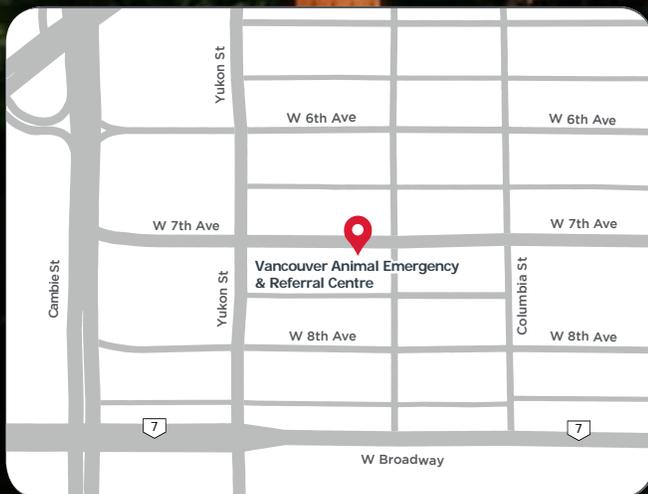
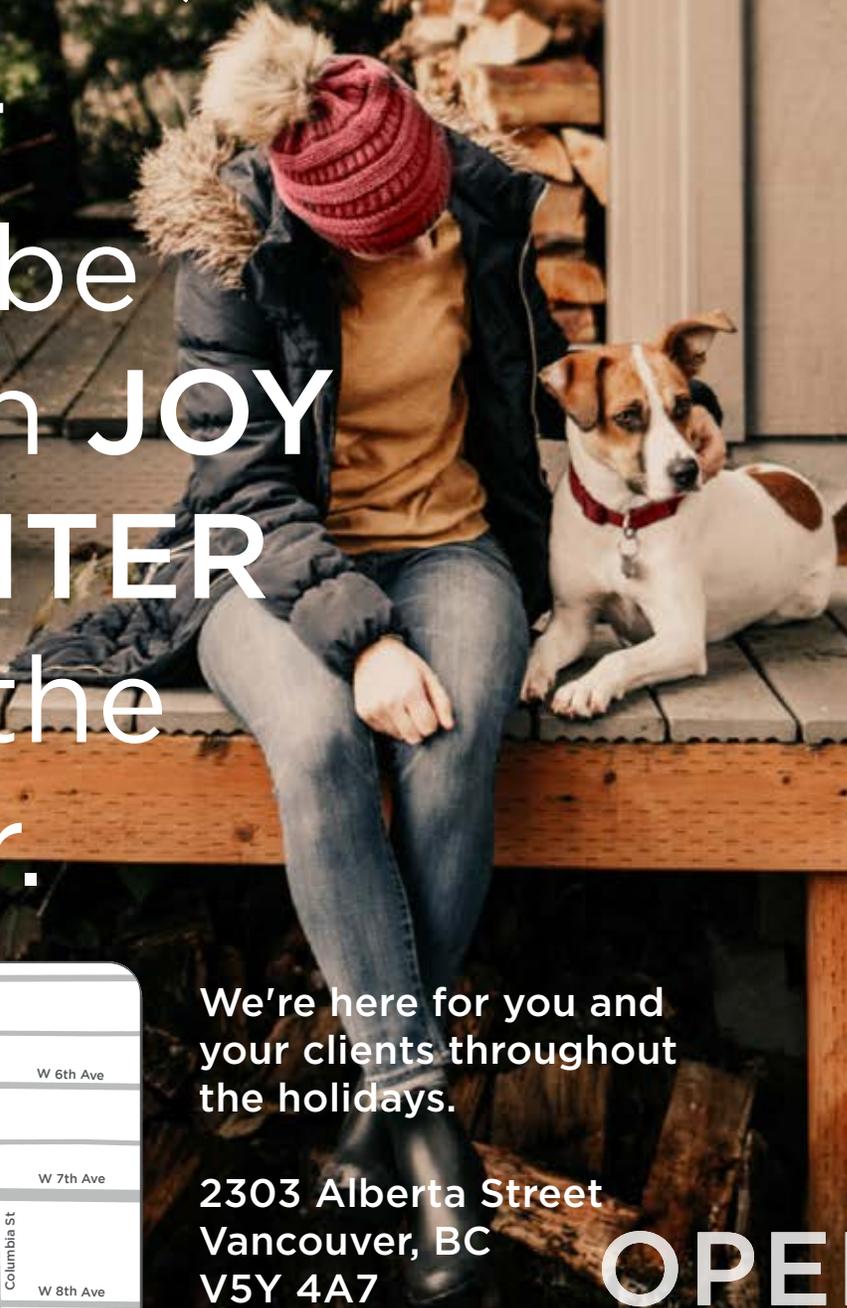
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