

WEST COAST VETERINARIAN

MARCH 2017 | Nº 26



GRIFFIN'S
STORY

CANINE
LAMENESS

WHAT DO WE MEAN
BY ONE WELFARE?

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CVMA-SBCV Chapter

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Reference: 1. Summerfield NJ, Boswood A, O'Grady MR, et al. Efficacy of pimobendan in the prevention of congestive heart failure or sudden death in Doberman Pinschers with preclinical dilated cardiomyopathy (the PROTECT study). *J Vet Intern Med.* 2012;26(1):1337-1349.



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COREY VAN'T HAAFF
EDITOR

I've recently become one of those people who has a seriously ill dog that will be seriously and negatively impacted for whatever time she has left. I'm speaking of my sweet Chihuahua cross Clara who has been diagnosed with severe congestive heart failure.

I'm not writing here about my shock and my sadness about the diagnosis, or my great love for this special dog; every veterinarian reading this magazine has heard, seen, and likely experienced this for themselves. What I'm writing about is how profoundly proud and impressed I am with this profession and everyone in it, and especially how well they work together, with coordinated efforts and sharing of information, all for the benefit of the patient and her owners.



My little dog has her own family veterinarian, of course, but as he is away, another veterinarian at the practice stepped in to treat Clara right from the moment of diagnosis. I was sent to one specialist clinic for an ultrasound, followed by a meeting with a cardiologist at a second specialist clinic. There were blood tests, prescriptions, X-rays, historic medical information, and two very sad, very worried, and very involved owners to deal with.

Throughout this entire process, I felt supported by every professional who met with us and who examined Clara. Without exception, each took the time to answer questions and spend as much time as we needed to ask those questions and process what we heard. Every supporting person, from RVTs to receptionists, provided a coordinated effort to make sure details from a very thick patient file were ready and waiting at each subsequent appointment. Specialists shared information with Clara's family veterinarian and copied me on every email so I was fully in the loop. And, this is important, I had email addresses where I could send results of home monitoring and additional questions to.

The part of my job with the Chapter that isn't written into my job description is the empathy part for the members of the public who call in. The public is not our target audience, but I often take those calls, and I have always felt confident in saying, "Go see your veterinarian, they will be able to help." Now, I will also have the great joy to say, "Go see your veterinarian and know that when it comes to the health of your beloved pet, everyone from your family veterinarian to the specialists, labs, RVTs and AHTs, receptionists, and clinic staff will surely work together to provide comprehensive coordinated care for your animal."

Email: wceditor@gmail.com

» TO THE EDITOR

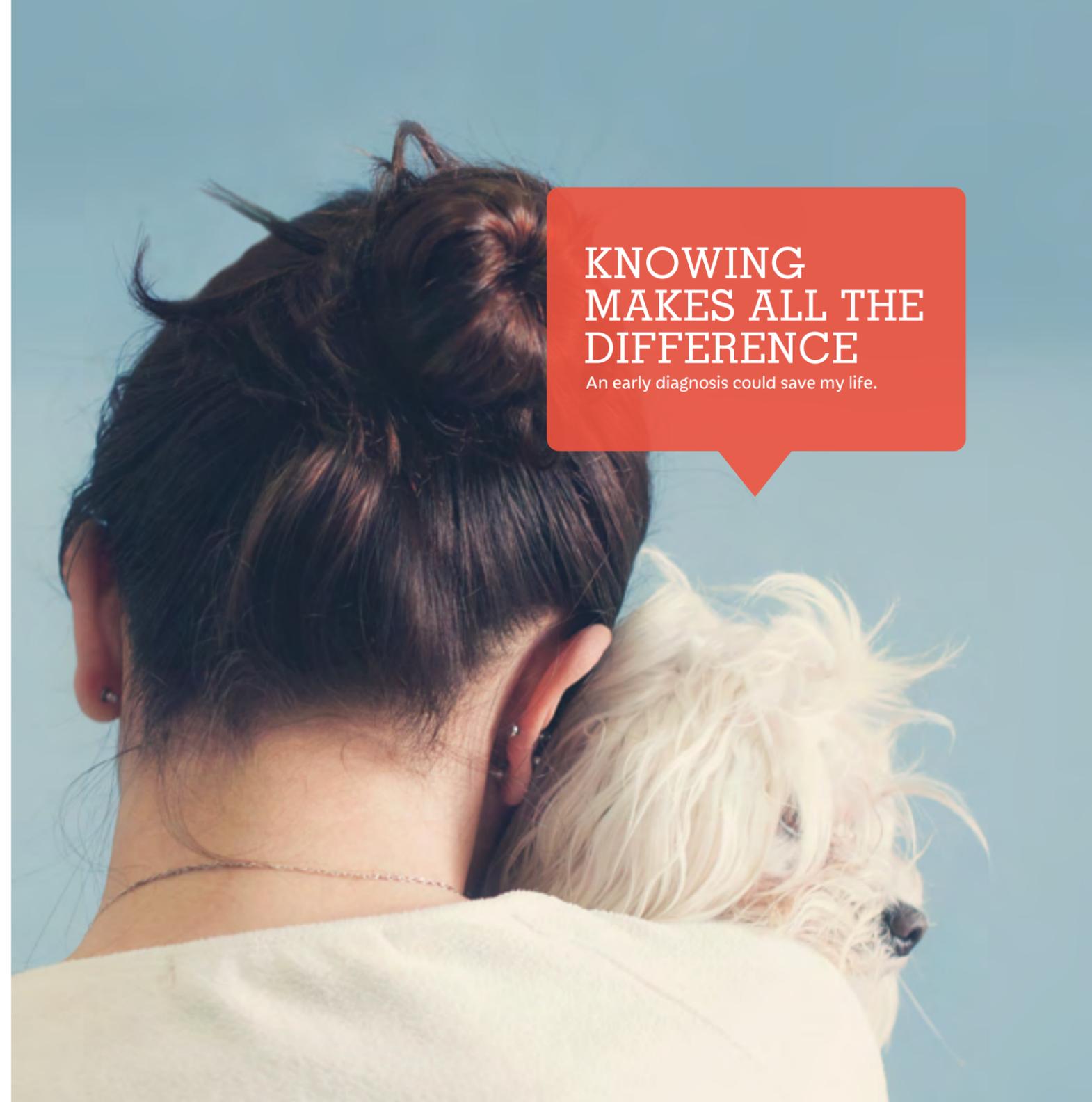
Letters from members are welcome. They may be edited for length and clarity. Email us at wceditor@gmail.com.

» ON THE COVER

A moment in time on the Iditarod Trail. Photo by Stuart L. Nelson, Jr, DVM.

We are pleased to announce the appointment of **Dr. Christiane Armstrong** as the new CVMA-SBCV Chapter liaison to the CVMA. We are grateful to Dr. Rob Ashburner for his years of service in this position.

CORRECTION In the RVT column "RVT? VT? VTS? AHT? RAHT? What's the difference," published in the December issue of *West Coast Veterinarian*, we said that for veterinary assistants there is no formal education. However, the College of Arts and Technology in Kelowna offers a nine-month program for veterinary hospital assistants.



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SARA DUBOIS, BSc, MSc, PhD, is the BCSPCA's Chief Scientific Officer and an Adjunct Professor at the UBC Applied Biology Program. She is a Registered Professional Biologist, Advisor to the Whale Sanctuary Project, a former board member of the Wildlife Rehabilitators Network of BC, and past President of the Oiled Wildlife Society of BC.



DAVID FRASER, CM, PhD, joined UBC in 1997 as NSERC Industrial Research Chair in Animal Welfare. His work has led to many innovations in animal housing and management, from designing better pig pens to reducing highway accidents involving wildlife. He was appointed Member of the Order of Canada in 2005 for his work in animal welfare science.



EMILIA GORDON, DVM, graduated from UC Davis in 2005. Her veterinary career has been evenly divided between private practice and shelter medicine, and for the last 15 years she has also volunteered at free clinics that provide essential wellness care to pets of homeless individuals. She currently manages the shelter animal health program at the BCSPCA.



DAVID LANE, DVM, Dipl. ACVSMR (Canine), has been a BC veterinarian since 1992, and recently earned diplomate status with the American College of Veterinary Sports Medicine and Rehabilitation (Canine).



He is the owner of Points East West Veterinary Services, a specialty practice focused exclusively on resolving conditions that cause lameness, chronic pain, and/or paresis in pets.

KELSEY MacNEIL, RVT, graduated from Thompson Rivers University in 2011 and since then has worked in a busy small animal practice. She works with the Prince George Humane Society and has started a feral cat TNR program. She has a cat and a terrier and generally has a foster of some sort (usually a dog with medical or behavioural issues, or litters of feral kittens).



STUART L. NELSON, JR, DVM, graduated from University of Missouri College of Veterinary Medicine. He has been Chief Veterinarian for the Iditarod since 1995, is a board member of the International Sled Dog Veterinary Medical Association, and is the recipient of the 2015 AVMA Meritorious Service Award.



AIDAN REID, BCom, is the Social Enterprise Officer at the BCSPCA and the program lead for the BC Pet Registry, BC's first provincial database for pet identification. Aidan graduated from UBC with a major in marketing. She lives in North Vancouver and is a long-time member of Big Sisters of BC Lower Mainland.

WCV

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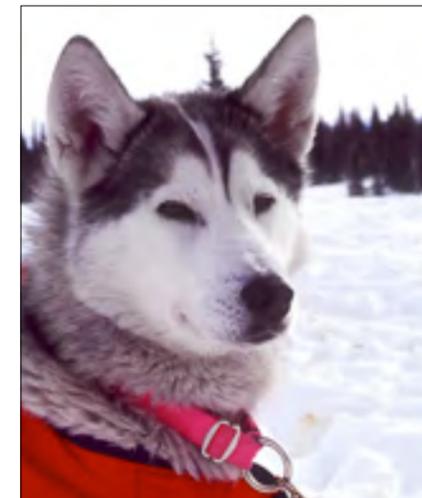
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THE IDITAROD VETERINARY PROGRAM



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march

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“CASES OF MULTI-DRUG-RESISTANT BACTERIA HAVE BECOME SO FREQUENT THEY ARE NO LONGER FRONT PAGE NEWS”

The CVMA welcomed three new members to Council on January 1, 2017: Dr. Christiane Armstrong, representative of CVMA-SBCV Chapter members in British Columbia; Dr. Karen Machin, WCVM/UCVM/OVC representative; and Dr. Christopher Bell, representative of CVMA members in Manitoba and Council Liaison to the CVMA Animal Welfare Committee. Visit the About CVMA section of www.canadianveterinarians.net to view the full list of CVMA Executive and Council members.

Protecting and maintaining the health of animals is essential to veterinary medicine. Cases of multi-drug-resistant bacteria have become so frequent they are no longer front page news. The CVMA has made the stewardship of antimicrobials a top priority. View the full article in the *News & Events* section of our website.

The following position statements have been approved and can be found on the CVMA's website, under the *Policy & Advocacy* tab: Castration of Piglets; Disbudding and Dehorning of Cattle; Induced Moulting of Poultry; Tail Docking of Dairy Cattle; and Use of Thermocautery for the Treatment of Lameness in Horses.

The following business improvement articles can be found under the *Practice & Economics* section of the CVMA's website: Green Veterinary Practice: Waste Management Tips; and Attracting New Clients with the First Phone Call.

CVMA members can enjoy a free subscription to the monthly global digital edition of *Clinician's Brief*, and special pricing on a *Plumb's Veterinary Drugs* individual subscription. Contact the CVMA office for more information.

Please review your listing in the CVMA Annual Source Guide to ensure your contact information is correct. If it is not, please call 1.800.567.2862 or visit our website to update your profile directly online.

The CVMA negotiated a group purchasing agreement with Staples Business Advantage to provide CVMA members with discounted office supplies. Staples Business Advantage saves money for CVMA members who own a practice or small business, are opening a practice, or are building or renovating a home office. Request an account application from CVMA by email to admin@cvma-acmv.org or call 1.800.567.2862.

The CVMA's hotel discount program gives online access to a worldwide inventory of hotels at unbeatable

rates. Reservations made through our system are guaranteed to be the lowest available. If you can find the same booking available at a lower rate within 24 hours of your reservation, a service agent will either refund the difference or cancel the reservation without penalty (with few exceptions). Take advantage of this discount program by reading the full article in the *News & Events* section of our website.

British Columbia veterinarians are invited to join the Canadian Veterinary Reserve (CVR). The CVR is a national body of qualified Canadian veterinarians who provide veterinary surge capacity to first responders in large-scale emergencies and disasters involving animals. Learn more and join under the *Science & Knowledge* tab of the CVMA website, under the *Canadian Veterinary Reserve*.

The CVMA, in partnership with Merck Animal Health, has declared March National Tick Awareness Month. The CVMA can provide communication material for use in your clinic. For more information, please visit www.canadianveterinarians.net/communication-material.

I and the staff of the CVMA, as well as the board and staff of the CVMA-SBCV Chapter, value your continued support as a CVMA Chapter member so we may continue to provide a voice for Canadian veterinarians. The CVMA and the CVMA-SBCV Chapter welcome your comments and enquiries. [WCV](#)



Troy Bourque, DVM, originally from Fredericton, NB, graduated from the Atlantic Veterinary College in 2000. Dr. Bourque was a mixed animal veterinarian for 14 years in Okotoks, until 2014, when he began working as an emergency veterinarian at Fish Creek 24-Hour Pet Hospital in Calgary. He now also works at

Big Rock Animal Clinic in Okotoks, practicing small animal medicine. Dr. Bourque was involved in the Alberta Veterinary Medical Association (ABVMA) for 14 years and served on council from 2006 to 2012, and as president in 2010. He has been involved with the CVMA for over five years on various committees including the Executive Committee, the Communications Advisory Group, and most recently as the Chair of the Veterinary Pharmaceutical Stewardship Advisory Group.

SAVE THE DATES

STAY IN BC FOR SOME EXCELLENT CE

CVMA-SBCV CHAPTER CAT HEALTHY SEMINAR — LANGLEY

The Langley Cat Healthy Seminar will take place on Tuesday, May 16th, 2017 at the Coast Langley City Hotel and Convention Centre in Langley, BC.

This two-city Cat Healthy seminar series features Liz O'Brien, DVM, Dipl. ABVP (Feline), Feline Specialist, Visionary for Cat Healthy and Owner of The Cat Clinic and Village Cat Clinic; and Kelly St. Denis, MSc, DVM, Dipl. ABVP (Feline Practice), discussing Feline Chronic Kidney Disease, Understanding and Treating FIC, Calcium Homeostasis, Hairballs are Not Normal, and Diabetes Mellitus.

MAY 16

CVMA-SBCV CHAPTER CAT HEALTHY SEMINAR — VICTORIA

The Victoria Cat Healthy Seminar will take place on Wednesday, May 17th, 2017 at the Coast Victoria Harbourside Hotel & Marina in Victoria, BC.

This two-city Cat Healthy seminar series features Liz O'Brien, DVM, Dipl. ABVP (Feline), Feline Specialist, Visionary for Cat Healthy and Owner of The Cat Clinic and Village Cat Clinic; and Kelly St. Denis, MSc, DVM, Dipl. ABVP (Feline Practice), discussing Feline Chronic Kidney Disease, Understanding and Treating FIC, Calcium Homeostasis, Hairballs are Not Normal, and Diabetes Mellitus.

MAY 17

46TH ANNUAL DELTA EQUINE SEMINAR — DELTA

The 46th Annual Delta Equine Seminar will take place on Monday, October 23, 2017 and Tuesday, October 24, 2017 at the Delta Town and Country Inn. Stephanie Valberg, DVM, PhD, Dipl. ACVIM, Dipl. ACVSMR (Equine) and Carrie Finno, DVM, PhD, Dipl. ACVIM, from the University of Michigan, will be speaking about all things related to muscle disease and neurological issues in the horse. For more information, visit www.deltaequineseminar.com.

OCTOBER 23 – 24

CVMA-SBCV CHAPTER FALL CONFERENCE & TRADE SHOW — VANCOUVER

The extended three-day CVMA-SBCV Chapter Fall Conference and Trade Show will be held Friday, November 3 to Sunday, November 5, 2017 at the Pinnacle Hotel Vancouver Harbourfront.

The Friday evening session will feature Miranda Sadar, DVM, Dipl. ACZM, speaking about Exotics. Saturday is themed around gerontology and aging, and the palliative pet. Shea Cox, DVM, CVPP, CPLP, will speak on gerontology and the geriatric pet, and Kathy Cooney, DVM, Pet Loss Companioning Certification Program, Companioning the Bereaved, and Founder of Home to Heaven Cooney Animal Hospice Consulting, will talk about palliative care and euthanasia.

Sunday will focus on dogs and cats with orthopedic issues. Marco Cervi, DVM, Dipl. ACVS, will be speaking about Orthopedic Issues and Surgery, and David Lane, DVM, Dipl. ACVSMR (Canine), will speak about Orthopedic Rehabilitation.

The Trade Show takes place on Saturday, November 4, and Sunday, November 5, 2017. For more information, visit www.canadianveterinarians.net.

NOVEMBER 3 – 5

What a winter it's been this year! I have lived on the left coast for more than eight years now, and I can't remember a colder one with more snow. In fact, it felt like I was back in Toronto with the snowfall, the bitter cold, the dry cracked hands, and snowplows. At work in the emergency room, I saw several snowy weather-related injuries, including cut pads on ice and dogs slipping and falling down icy stairs with resultant injuries. I'm definitely ready for spring, warmer weather, cherry blossoms, and flowers.

By the time you read this, I will have travelled to "Winterpeg" for the MVMA meeting. This is one of my favourite meetings as the folks at the MVMA are always so warm and friendly. The meeting always gives me so many ideas to discuss with the directors of the CVMA-SBCV Chapter for project development. The MVMA has some tremendous programs working with their local pharmacists to exchange educational pieces, and the Association runs a very successful counselling program through a third party.

Before Christmas break, I met with Dr. Brendan Matthews, the president of the CVBC. We have decided to meet in person twice a year in order to do a better job of communicating with each other what our organizations are doing, and to try and help each other with our messaging to members. We have also discussed having a column in *West Coast Veterinarian* for the College to disseminate information to our CVMA-SBCV Chapter members.

A few Chapter members reached out to the board of directors in late December for clarification regarding the CVBC bylaw revisions. We wrote to the College on behalf of our 565 members, and the College was very prompt in its response to us. It is important to highlight that the CVMA-SBCV Chapter is here to support our members and to use our strength to get pertinent information to our members. An individual

member may otherwise hit a concrete wall when trying to get information. It is our feeling that the College's response highlights their willingness to work with the CVMA-SBCV Chapter to help disseminate information. The CVMA-SBCV Chapter office has emailed the CVBC's response to all our members; if you did not receive it, please let us know.

The CVMA-SBCV Chapter is still working to try and improve public perception of veterinarians in BC. I am currently in the midst of putting together a proposal to present to the board of directors for approval. The Chapter is also embarking on a strategic planning session to review what we have accomplished to date and what we propose for the future. I am also working on a proposal to the board of directors to try and organize a One Health meeting with local BC health leaders. Stay tuned for more information. [WCV](#)



Sarah Armstrong, DVM, graduated from OVC in 2007. Following graduation, she worked full time in general practice and worked part time at a local emergency practice in Southern Ontario before moving to Vancouver, BC, where she currently works at the Vancouver Animal Emergency Clinic.

IN MEMORIAM

DAVID LAURENCE COURTICE, DVM APRIL 26, 1931–NOVEMBER 11, 2016



Born in Burnaby, Dave attended Burnaby Secondary School, followed by one year at UBC. He was a student of Ontario Veterinary College (1951–1956) and started Burquitlam Animal Hospital in 1959. He moved to Qualicum Beach in 1993, after ill health forced him into early retirement.

Dave served a term as President of the BCVMA, and was involved with Kiwanis, Probus Club, and Oceanside Photographers. He was particularly proud of his efforts to save the Qualicum Beach Heritage Forest. In 2015, his memoirs were published.

Dave was a kind and gentle soul who loved his family, all animals, and the environment. He will be greatly missed.

Predeceased by his first wife, Joan, in 1988, Dave is survived by his loving wife, Gail; two sons, Dr. Ian Courtice (Lesley) and Dale Courtice; three granddaughters, Sarah, Lauren, and Rachel; step-granddaughters Jessica and Alexa; and step-children Michael, Joanna, and Fay.

An intimate family gathering will be held at a later date. [WCV](#)

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MENTAL HEALTH

FROM A STUDENT'S PERSPECTIVE

Everyone knows that being in a program like veterinary medicine can be a stressful, albeit rewarding endeavour. As I wrap up my third fall semester here at the WCVM (which some might argue is the most difficult semester of veterinary school), I am left thinking about the toll that this program has taken on my mental health, as well as that of my peers. I am certain that a career in veterinary medicine will be a worthwhile and fulfilling one, but after a constant barrage of exams, sleepless nights, feelings of inadequacy, and periods of anxiety over whether or not I'll be able to get everything done on time, it's not hard to see why veterinary students might suffer from mental health issues. I can only imagine how the stress must escalate once in practice, dealing with the demands of work, difficult clients, and emotionally exhausting situations (not to mention running a business, paying the bills, and saving for a comfortable retirement).

The sad truth is that, generally speaking, those in the veterinary profession deal with feelings of discontent and unhappiness on a much greater level than those not in the profession. Research shows that the rate of suicide among veterinarians is four times that of the general population, with females experiencing greater suicidal tendencies than

their male counterparts¹. A multitude of factors contribute to these alarming statistics, making it impossible to pinpoint one possible cause. However, certain personality types (for example, high achievers), access to dangerous veterinary drugs, and emotionally upsetting or draining situations could certainly be considered risk factors.

One study² concluded that as veterinary students' exposure to euthanasia (especially companion animal euthanasia) increased, so did their fearlessness regarding their own death, offering a potential explanation as to why veterinarians are more prone to attempt suicide. Of course, I am no expert on the topic, but from what I have read—as well as what intuition tells me—it must be very difficult to have such love and compassion for animals yet be faced daily with life and death decisions regarding your patients, not to mention dealing with unrealistic expectations in regards to what you can and cannot do for your patients and clients.

There has been far less research done on the issue of mental health among veterinary students than among practising veterinarians, but obviously veterinary school is recognized as being a challenging experience that may negatively impact a student's mental health and well-being (in addition, of course, to positively influencing it in many ways). Likewise, in order to address mental health concerns among veterinarians, targeting these problems from the onset and equipping students with the tools to enhance their mental wellness and resiliency is imperative. I am happy to report that, during my time at the WCVM, I have witnessed the multitude of ways in which the school actively promotes mental health and wellness and attempts to overcome the stigma associated with mental illness.

First and foremost, Student Services at the WCVM does an incredible job of supporting students going through difficult times. I recently heard that many veterinary school Student Services departments are actually located outside of their respective veterinary colleges and not even within the same facilities. At the WCVM, the department is only two floors up from our classrooms, something which we at the school might tend to take for granted. Student Services personnel here have an open-door policy, and students are welcome to visit or contact them at any time to discuss important issues such as illness, family matters, trouble with classes, assistance seeking health care or other services, and so on. I feel fortunate that we at the WCVM have such a supportive group of people, readily accessible to us, at times when things aren't going so well in our lives.

Another key player in this effort to promote student wellness is the WCVM's very own veterinary social worker, Erin Wasson. Erin is available not only for clients of the Veterinary Medical Centre, but also for veterinary students in need of professional support, referrals to counsellors and support groups, or even just as someone to talk to. Erin works tirelessly to support students dealing with a wide array of personal issues, and having her advocate on your behalf and be a voice of understanding, compassion, and empathy during difficult times has made a world of difference for many students.

I was also excited to hear that the WCVM has launched a new initiative—a Mental Health First Aid course. This course was designed to help participating students, professors, and staff recognize when their peers are experiencing mental health issues, offer appropriate support, and refer or assist in seeking professional help when needed. I have friends in my class who are participating in this course and who have described to me the ways in which they will now be able to help fellow students going through emotionally or mentally challenging times. I think that recognition of when someone is going through a mental health crisis

is often the most difficult part of assisting someone in need, so the fact that these students are now better equipped to do this is a feat in itself.

Practising mindfulness is another way of enhancing mental well-being, and since 2010 the WCVM has been offering a third-year elective course on Mindful Veterinary Practice. The course stems from the Mindfulness Based Stress Reduction program developed by the University of Massachusetts Medical Center in 1979, and has been shown to have a positive impact on things such as attention and memory, client communication, empathy and psychological well-being^{3,4}. Led by Dr. Patricia Dowling, this course provides students with various tools to assist them with being present and living in the moment, managing stress and conflict, and finding a better work/school-life balance. Practising mindfulness through meditation and yoga has been a major stress-reliever and coping mechanism in my own life, so I am glad to know that other students are learning how to benefit from it as well.

“IT MUST BE VERY DIFFICULT TO HAVE SUCH LOVE AND COMPASSION FOR ANIMALS YET BE FACED DAILY WITH LIFE AND DEATH DECISIONS REGARDING YOUR PATIENTS”

While there is still a lot to be done in terms of addressing mental health issues among veterinarians and veterinary students, I feel very fortunate to be at a school that takes mental health seriously and is looking at ways to enhance the well-being of its students. The fact that people are having open and honest discussions about the topic is encouraging. We need to continue having these conversations and being honest with ourselves and others about the ways in which school and work impact us. Life can be stressful at times, and there is no shame in needing to reach out for help during such times. If you find yourself feeling unwell, I encourage you to talk to someone about it, seek help from your professional veterinary association, and/or use the resources that are available to support you. I also encourage a greater level of understanding and compassion for each other, because it's only when we work together that we are truly able to achieve enduring progress in dealing with this important issue. [WCV](#)

1 Stoenen DL. Suicide in veterinary medicine: Let's talk about it. *The Canadian Veterinary Journal*. 2015;56(1):89-92.

2 Witte TK, Correia CJ, and Angarano D. Experience with euthanasia is associated with fearlessness about death in veterinary students. *Suicide Life Threat Behav*. 2013;43(2): 125-138.

3 Gunville L. WCVM Today: Dr. Trisha Dowling named teaching scholar. Retrieved December 28 from <http://words.usask.ca/wcvm/2011/03/dr-trisha-dowling-named-teaching-scholar/>

4 Dowling PM. Mindful veterinary practice. The Gwenna Moss Centre for Teaching Effectiveness: Bridges newsletter. 2012;10(3): 3-5.



Amber Backwell was born and raised in London, ON, and moved to BC in 2009 to pursue a Masters of Public Health. She is looking forward to returning to BC upon graduation from WCVM to work in a mixed animal practice and hopes to be involved in wildlife medicine one day. When not in school, she likes to hike, camp, ride horses, and do anything else involving the outdoors. She is currently in her third year of the DVM program at the WCVM.



WHAT DO WE MEAN BY ONE WELFARE?

BY DAVID FRASER, CM, PhD

“THE CONCLUSION WAS THAT, IN THE MAJORITY OF CASES, WE NEED TO BRING TOGETHER ANIMAL WELFARE AND HUMAN WELFARE AGENCIES IN ORDER TO SOLVE THE PROBLEMS”

In recent years, we have started to use the term One Welfare, but what does it actually mean? It is obviously inspired by One Health with its emphasis on diseases transmitted between animals and humans, often as a result of some disturbance to the environment. A classic example was the outbreak of Nipah Virus in Malaysia in 1998 when massive forest fires caused a dense haze over the country, driving fruit bats out of the forest and into orchards where they transmitted the virus to pigs, and ultimately to farm workers.

One Welfare goes beyond communicable diseases to recognize the other connections between human welfare, animal welfare, and the integrity of the environment. These were explored last September in Winnipeg at the first One Welfare conference, hosted jointly by Manitoba’s veterinary and medical authorities.

The most obvious connection is that pursuing animal welfare often improves human welfare and vice versa. In many countries, animals are used for traction in agriculture or

transportation, but inappropriate harnessing causes injuries to the animals and reduces their efficiency and hence the incomes of their owners. Preventing pre-slaughter stress is a recognized priority for animal welfare, and it also helps prevent downgrading of carcasses and food safety problems. And of course, on-farm disease-prevention programs are important for both animal welfare and the prosperity and quality of life of animal producers.

As a second connection, many problems require coordination between animal welfare and human welfare agencies. For example, animal hoarding is one of the most common reasons for legal intervention to protect animal welfare. Studies now indicate that hoarding, whether of animals or objects, is a distinct form of mental illness (now called Hoarding Disorder) which in most cases co-occurs with other mental health problems, especially depression, anxiety, and social phobia. If we try to solve the animal welfare problem without simultaneously addressing the mental health problem, the individual is likely to simply re-offend.

Much the same is true in cases of neglect. A study in Ireland followed thirteen farmers charged with neglecting livestock. In five cases, the underlying problem was failing health or senility, and another four cases involved depression or other mental distress resulting from divorce or other personal difficulties. The conclusion was that, in the majority of cases, we need to bring together animal welfare and human welfare agencies in order to solve the problems.

Disaster relief provides another example. Experience during Hurricane Katrina showed that people are reluctant to evacuate from danger unless they can save their pets; on this basis, the USA now has protocols for animals in disaster relief. And where disaster relief involves livestock owners, the safety of the animals is often the top priority because the animals provide the family’s future livelihood.

As a third connection, both human and animal welfare are closely related to the integrity of the environment. Pollution and climate change, for instance, are expected to have drastic effects on both people and animals. As just one example, nutrient loading of coastal waters can cause massive growth of algae whose decomposition can exhaust the oxygen in the water, causing local fisheries to collapse and untold numbers of fish to die from suffocation.

What, then, do we mean by One Welfare? At a conceptual level, the term is a call to broaden our thinking to recognize the many interconnections between human welfare, animal welfare, and the integrity of the environment. At a practical level, it is also a call to improve animal welfare as a means of improving human welfare (and vice versa), to coordinate veterinary and animal protection services with human health and social services, and to protect the environment for the benefit of both the human and non-human inhabitants of the world. [WCV](#)

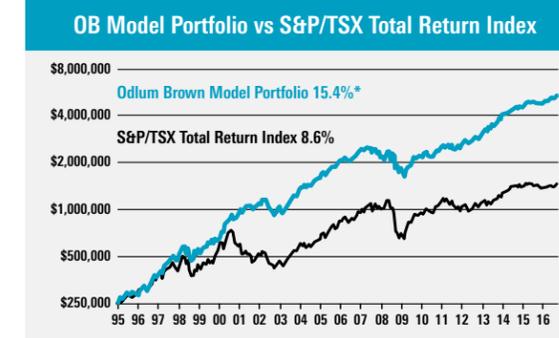
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PATIENCE OF THE HEART



BY VERONICA GVENTSADZE, MA, PhD, DVM

PHOTO BY DAN DICKHOUT

Canada is a country whose early prosperity and very foundations relied on the fur trade. Hunting, including hunting done by veterinarians, is a widespread activity and will likely continue to be so in the near future. While the practice raises many objections from reason and from the emotions, the hunter's position deserves consideration because it can serve as a catalyst in clarifying our own personal stance to ourselves. Those of us in private practice are particularly vulnerable to the demands of sentimentality that permeate the entire pet ownership industry. The other day, I was reminded of just how seriously the human-animal bond must be taken. A Post-it note on a receptionist's computer read "Remember: my pet is an extension of myself." With regard to hunting, there is considerable diversity of expectations among the general public and pet owners in particular. Some hunters expect their veterinarian to share the hunting lifestyle and values, as they believe that only then can their veterinarian truly appreciate their dogs' needs. On the other end of the spectrum are clients who condemn hunters and veterinarians who hunt, and will not bring their pets near them. In between these extremes are clients who value veterinarians for their

medical competence and do not particularly care about their personal beliefs or bedside manner. But these seem to be in the minority. For the majority of clients, regardless of background or persuasion, veterinarians are expected to provide not only medical expertise but also moral and emotional validation of the client's choices. And while emotional investment in a patient and their owner can be deeply gratifying to a veterinarian, it can also be a source of great stress and misery if expectations—whether the owner's or the veterinarian's—are not met. Thus, for veterinarians in private practice, it has become increasingly important to distinguish between sentimentality and true kindness, and to keep reminding ourselves of the scientists we are trained to be. (A wise colleague reminded me that to be a veterinarian you must love medicine and like animals.) Much like participating in a polar bear swim, stepping outside the virtual exam room to consider issues relating to wildlife can be a very healthful if

not particularly cozy exercise. I cannot do justice here to various methods of hunting or to specific examples of hunting in various countries, so I work with generalities which I have summarized under two headings: what hunting does to, or says about, the person who hunts, and what it does to the animal who is hunted.

Love of animals has become an unspoken requirement for being a good person in the modern developed world. A widespread view is that deliberate killing is incompatible with love of animals. Many people insist on a no-kill approach to the living world, whether it is shelters for unwanted pets or conservation of wildlife through letting nature sort itself out. The underlying belief is that killing by humans is not only inherently bad but also unnecessary. But an honest look at the circle of life shows that while not all species are overt parasites or carnivores, every animal lives at the expense of another animal. We and our pets live at the expense of the wildlife displaced to make space for our dwellings and for the fields on which to grow crops and raise livestock. Absolute innocence is an unattainable luxury, and the best we can strive for is compassion in how we go about mitigating the consequences of our impact on nature. The goal in most cases of hunting is either to protect people's livelihoods or to restore balance within a species or between species. (Even trophy hunting, a practice that seems to have no practical value beyond satisfying the hunter's lust, claims to contribute to conservation.) If we are to scoff at hunters' claims that they love and understand animals and are a driving force behind conservation, we should take an equally skeptical look at the claim often made

"IT HAS BECOME INCREASINGLY IMPORTANT TO DISTINGUISH BETWEEN SENTIMENTALITY AND TRUE KINDNESS, AND TO KEEP REMINDING OURSELVES OF THE SCIENTISTS WE ARE TRAINED TO BE"

by veterinarians: "We save lives." Both claims, while true to an extent, are somewhat desperate responses to pressures from a sentiment-driven public, attempts to make ourselves likable and even heroic, to defend ourselves from accusations of cruelty and bloodlust in the case of hunters and callous greed in the case of veterinarians. In the dense and tangled forest of public opinion, both these occupations often end up as the hunted.

Many people are not opposed to hunting in principle as long as it is carried out humanely, without undue stress or prolonged physical pain. We often measure the welfare of wild animals by the same criteria we apply to domestic species, but in this case a double standard is justified. Domestic species have been bred over centuries and millennia to feel safe. Wild animals have retained the capacity for the stress of pursuit or flight, and in them the effects of such stress are reversible if they survive a hunt uninjured. An important claim worth studying is that animals have no premonition of death, hence they feel no suffering associated with fear of impending death.¹ What does constitute overwhelming stress for a wild animal is being prevented from taking constructive action. Thus, while the emerging concept of green hunting may be progressive in its goal of preserving the animal's life, the mere avoidance of killing or inflicting injury is no cause for self-congratulation. The anxiety the animal very likely feels at being immobilized and helpless while still conscious is a considerable

offense against its nature. The intensity and duration of pain is a crucial criterion, and hunting methods vary greatly in the proportion of wounded survivors that cannot be retrieved. When all factors are considered, ironically it is hunting by hounds, banned in the UK due to its perceived barbarity, that presents one of the more humane examples of the practice. (During the long phase of pursuit, the quarry expresses its natural behaviours in its home environment, and in the case of foxes and hares, death is swift if violent and gory.)

In conclusion, let us not forget that misguided sentiment can be harmful to the animals we care for, and to ourselves. I am reminded of the words of Stefan Zweig from his novel *Impatience of the Heart*:

There are in fact two kinds of pity. One, the feeble and sentimental kind, is really no more than the heart's impatience to free itself as quickly as possible from emotional discomfort when faced with another's misfortune Then there is the other kind, which is the only one that counts, unsentimental yet constructive, knowing its own mind, fully resolved to endure everything patiently, compassionately, along with that other person, right to the very limit of its strength, and even beyond that limit. [WCV](#)

¹ A Veterinary Opinion on Hunting with Hounds Dr. L.H. Thomas and Professor W.R. Allen. This publication of the UK's Veterinary Association for Wildlife Management was prepared in 2000 for the Committee of Inquiry into Hunting With Dogs.



VERONICA GVENTSADZE, MA, PhD, DVM, graduated from Ontario Veterinary College in 2008. She moved to Squamish, BC where she worked for two years as an associate veterinarian in a small animal practice. She currently travels across BC as a locum and enjoys learning something new from each practice.



CANINE LAMENESS

BY DAVID LANE, DVM, Dipl. ACVSMR (Canine)

Despite being quite common, canine lameness secondary to muscular pain is rarely discussed in veterinary school or at conferences. However, this is starting to change now that there is a new specialty recognized by the AVMA, the American College of Veterinary Sports Medicine and Rehabilitation (ACVSMR).

Chewy was a 12yo NM husky cross who presented with a history of lower back pain (LBP), shortened right hind stride length, and urinary incontinence. He would leak small amounts of urine multiple times throughout the day, and the owner estimated the total daily amount of leaked urine was about one third the volume of a full urination.

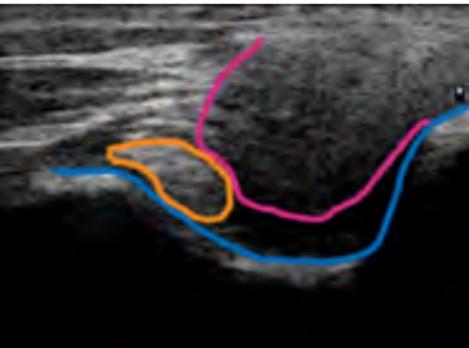
Appendicular examination revealed normal coxofemoral range of motion, but reduced hind limb extension secondary to either lumbosacral, caudal lumbar, or sacroiliac pain. These findings were supported by radiographic evidence of ankylosing spondylosis and lumbar facet osteoarthritis (OA), but normal coxofemoral joints.

Examination of the paraspinal region revealed multiple areas with hypertonic and painful musculature (particularly involving the right psoas major muscle), asymmetric resting position of both the pelvis and sacrum, and reduced lumbar vertebral mobility.

Treatment was initiated using a combination of acupuncture, manual therapy, and laser. A week later, the owner reported that the right hind lameness had resolved, and that although the incontinence episodes were just as frequent, the volume had dropped to just 5% of a full urination volume. After a second treatment, the urinary incontinence completely resolved. A year has passed since, and it has not recurred.

LEFT It may not look like it in this picture, but Maggie enjoys swimming as part of her therapeutic exercise program for polyarthritis. Photos courtesy of David Lane, DVM, Dipl. ACVSMR (Canine).

“WITH APPROPRIATE TREATMENT, MOST SHOULDER ISSUES CAN BE FULLY RESOLVED”



CASE STUDY 2

This ultrasound image shows a transverse image of the biceps tendon (outlined in orange) and the supraspinatus tendon (outlined in pink) within the bicipital groove (outlined in blue). The supraspinatus tendon is grossly enlarged, filling the bicipital groove and impinging the biceps tendon against the far wall.

LBP is an exceedingly common condition in dogs. It typically presents as a symmetric hind end condition, but can be lateralized. There may or may not be concurrent intervertebral disc (IVD) involvement. In Chewy’s case, spasm of the psoas major muscle was considered the most likely cause of the unilateral lameness.

Psoas conditions can also present as an intermittent skipping gait identical to that normally associated with a luxating patella. This is also true of primary sacroiliac joint pain. Both these rule-outs should be considered in situations where dogs demonstrate a skipping hind limb gait but no evidence of luxating patellae.

Although LBP is not yet a recognized cause of urinary incontinence, it is not uncommon for incontinence to improve or completely disappear with resolution of the LBP. It is theorized that the hypertonic musculature increases pressure on peripheral nerves resulting in paresis of the urethral sphincter mechanism. Subjectively, I’ve found that incontinent male dogs are more likely to respond to treatment of LBP.

ACVSMR diplomates are specialists in diagnosing and treating conditions that result in painful, weak, restricted, or otherwise abnormal movement. Although surgical ability is not a requirement of ACVSMR designation, the field of lameness diagnosis does require a comprehensive understanding of orthopedics. For that reason, many ACVSMR diplomates are double-boarded with either the American or European Colleges of Veterinary Surgery.

ACVSMR diplomates are designated either canine or equine specialists, depending on their area of interest. Globally, there are only 81 canine specialists, and just 5 in Canada.

Some canine designates are associated with large referral centres and are primarily focused on facilitating patient recovery from orthopedic or spinal surgery. Some work predominantly with sport or working dogs, while others focus on palliative geriatric care or on addressing lameness in pets. Most treat some combination of the above.

Zoey was a 2yo SF black lab that presented with a one-year history of sporadic right forelimb lameness that was flared by exercise and manifested as stiffness after rest. Prior radiographs demonstrated no abnormalities, but on examination, pain could be isolated to the right teres major muscle. Although primary teres major muscle-induced lameness exists, in this case it was suspected that Zoey’s muscular discomfort was secondary to primary shoulder joint pathology.

Ultrasonographic imaging of the shoulder revealed bilaterally enlarged supraspinatus tendons that were encroaching into the bicipital groove and impinging the biceps tendon, resulting in tenosynovitis. Because no disruption of tendon fibres was apparent, we elected to treat her with extracorporeal shockwave therapy coupled with an appropriate rehabilitation program.

Repeat ultrasound eight weeks later showed significant regression of the supraspinatus tendon and reduced inflammation. Zoey has since completed her rehabilitation program and has returned to full activity with no discernable lameness.

Shoulder lameness like Zoey’s is a common reason for a Veterinary Sports Medicine and Rehabilitation (VSMR) referral. With appropriate treatment, most shoulder issues can be fully resolved. Back pain, such as that experienced by Chewy, is another common reason for referral to a VSMR specialist. Other reasons include difficult to localize pain or lameness, lameness that is not responding to the prescribed therapy, non-surgical spinal cord deficits such as paresis or ataxia, management of arthritis or other chronic pain conditions, palliative geriatric care, and owners who wish to see their dogs return to a high level of athleticism or wish to avoid ongoing prescription medication. In short, any condition that causes weakened or painful movement falls under the umbrella of VSMR, either as the primary treatment or as an adjunct to surgery.

Rehabilitation therapy is often part of the treatment for the conditions listed above, but is also applied to patients recovering from pregnancy, major surgery, or other trauma. Research has shown that for dogs receiving tibial-plateau-levelling osteotomy (TPLO) surgery, those that received rehabilitation therapy afterward are 30% more likely to have better outcomes with no increase in complication rates.

Mojo presented as a 3yo NM 40kg mixed breed who had previously undergone tibial tuberosity advancement (TTA) surgery. The owner was now reporting discomfort on the opposite hind limb, but a diagnostic workup failed to find evidence of cruciate disease in that knee. Mojo demonstrated pronounced iliopsoas tendon pain bilaterally. Treatment was initiated using a combination of manual therapy, acupuncture, laser, therapeutic ultrasound, and an appropriate rehabilitation program.

Despite this treatment, Mojo’s condition deteriorated. He developed a lumbar kyphosis, began bunny hopping, expressed fear when asked to ascend a ramp, and outright refused to climb stairs. Radiographs failed to detect evidence of lumbosacral disc disease, but ultrasound imaging of his iliopsoas tendons revealed bilateral tendinopathy with fibre disruption.

Stem cells were collected from Mojo’s bone marrow, mixed with platelet-rich plasma, and injected into Mojo’s iliopsoas tendons under ultrasound guidance. Three weeks later, the owner called to express concern because Mojo kept jumping over the back of the couch. Follow-up ultrasound imaging later showed excellent tendon repair. Mojo went on to a full recovery and three years later still has no demonstrable iliopsoas tendon discomfort.

Jumping over the couch was never part of Mojo’s rehabilitation program. There is no reason to believe that stem cells repaired the tendon in just three weeks. However, there is growing evidence of stem cells’ ability to resolve maladaptive pain, and this may explain the dramatic improvement in patient comfort over such a short period of time.

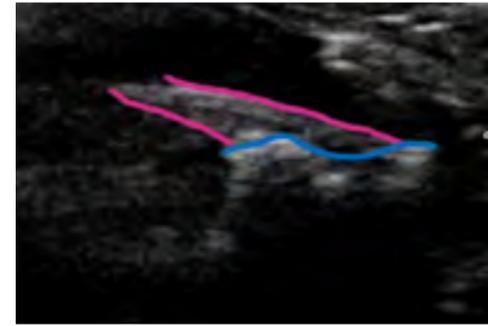
Hip flexor pain is a common sequela of either hip or stifle pain, and is the reason why some dogs fail to return to full activity following successful surgery. Similarly, LBP is a common side effect of the altered mechanics that accompanies coxofemoral OA, and is the reason why many hip dysplasia dogs show substantial hind end discomfort despite minimal radiographic changes.

Tendinopathy differs from tendinitis in that there is no inflammatory component. Chronic tendinitis is uncommon in dogs whereas chronic tendinopathy is not. The lack of an inflammatory component in tendinopathy is the reason NSAIDs frequently fail to substantially improve comfort. In fact, it is believed that NSAIDs impair healing through their vasoconstrictive effect. Tendinopathy needs a different form of treatment altogether.

ACVSMRs use a number of tools to address abnormalities involving muscle, bone, joint, nerve, or tendon. Some of these tools increase perfusion and accelerate metabolism, particularly in poorly vascularized structures. These include laser, therapeutic ultrasound, pulsed electromagnetic therapy, acupuncture, and extracorporeal shockwave. Some techniques, such as therapeutic exercise, manual therapy, electrical stimulation, and acupuncture, rely on neuroplasticity to exert their effect. Other treatments, such as extracorporeal shockwave, can stimulate the production of growth factors and other components of healing, but nothing generates fresh tissue as well as combined platelet-rich plasma and mesenchymal stem cells (PRP/MSC).

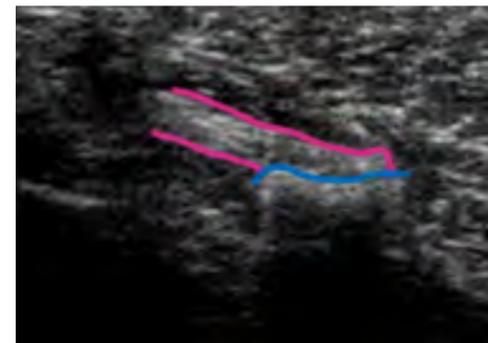
Instead of simply filling tendon defects with fibrous tissue, which lacks the durability of normal tendon, PRP/MSC grows new tendon. It can be used in combination with surgery (e.g., calcaneal tendon repair, partial cranial crucial ligament (CrCL) tears following TPLO surgery), or as the primary treatment method (e.g., biceps, supraspinatus, iliopsoas tendon repair, partial cruciate ligament repair). Patients receiving this treatment are returning to a level of activity that was difficult to achieve using other techniques. This is particularly true for partial biceps tendon tears, in which surgical transection used to be seen as a first-line therapeutic approach, despite its deleterious long-term effects.

VSMR is still a relatively new specialty, having barely progressed from infancy to toddlerhood, but already it is radically changing the way that common musculoskeletal conditions are being addressed. While there is currently more equine-specific research than canine-specific, the amount of canine data is snowballing, as is the appreciation of what can be done for inflexible, painful, ataxic, or paretic pets. [WCV](#)



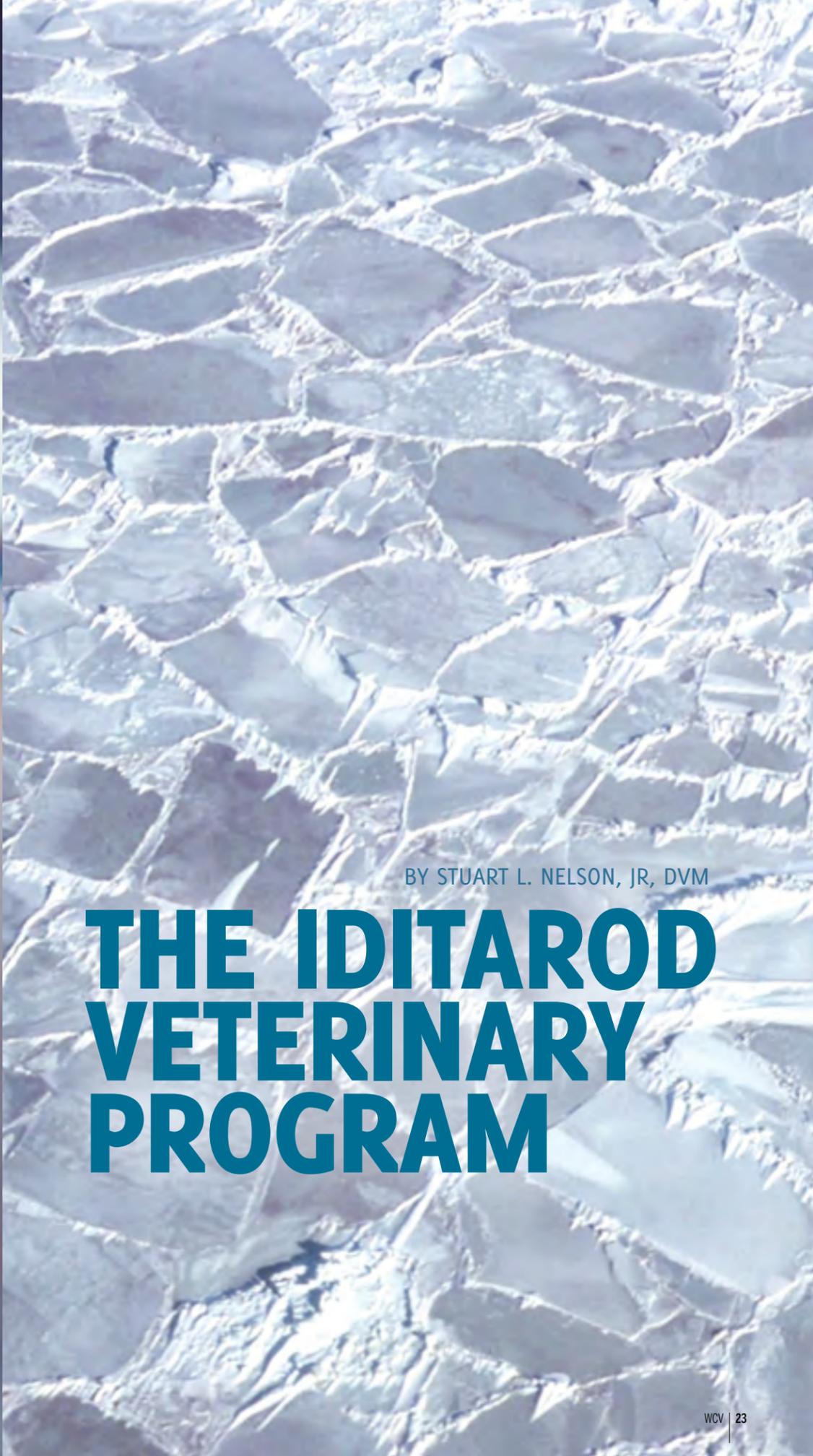
CASE STUDY 3

This ultrasound image demonstrates the iliopsoas tendon (outlined in pink) inserting into the lesser trochanter (outlined in blue). A hypoechoic lesion can be seen near the insertion point.



CASE STUDY 3

Here is the same tendon again, eight weeks after injection with PRP/MSC. Note the improved appearance of the tendon.



BY STUART L. NELSON, JR, DVM

THE IDITAROD VETERINARY PROGRAM

T

he Iditarod Trail Sled Dog Race is the most well-known sled dog race in the world. To many, it also represents the ultimate challenge in outdoor adventure. Starting in downtown Anchorage, teams competing in the race follow the historic Iditarod

Trail for 1,049 miles through the vast Alaskan wilderness, with the goal of finishing in Nome. This marathon event has become very popular and is widely followed for a number of reasons. Along with this success, the level of health care for its canine athletes has continued to escalate since 1973, the year of the inaugural running of the Iditarod. Elaborate pre-race health screening protocols, systematic evaluations during the race, and proactive research studies have set the standards for care of sled dogs.

So, let's start with the origin of the name Iditarod. Use of the historic Iditarod Trail was at its highest during the Gold Rush in Alaska during the late 1800s and early 1900s. One version of the trail's name was taken from miners who typically worked with pick and shovel. One miner might ask another what they did for the day, with the response being "I did a rod," a rod being a measurement of volume. However, today the generally accepted source of the name is from an aboriginal word meaning "distant place."

Dr. Terry Adkins (who competed in every Iditarod Trail Sled Dog Race until the early 90s) was the one and only veterinarian for the first race. Today, a staff of approximately 55 volunteer veterinarians and fifteen licensed veterinary technicians are involved in caring for the dogs before, during, and after their race participation. Approximately 45 of the veterinarians serve as trail vets, performing routine evaluations of sled dogs at the checkpoints. Typically, about ten percent of the veterinary staff are Alaskan residents, with most of the remainder being from the Lower 48 states. However, many other countries have been represented over the years, including Australia, Austria, Canada, England, France, Germany, New Zealand, and Norway.

The selection process for veterinarians begins in May of the year before the race (which starts on the first Saturday in March), when invitation letters are sent to Iditarod veterans. In any given year, most of the veterinary staff are veterans of previous Iditarods, but a few rookies are selected annually. To be eligible for staff selection, a minimum of five years of clinical practice experience and fluency in the English language are necessary. A veterinarian must also have a current permanent license to practice within their local jurisdiction, and the license must be in good standing. For those who do not maintain a permanent Alaska veterinary license (the majority are from "outside"), appropriate paperwork is submitted to the Alaska State Veterinary Medical Board for review. Assuming all is in order, an Alaska Courtesy License is issued to enable non-Alaskan applicants to serve as Iditarod veterinarians.

The philosophy of the Iditarod veterinary program is that proper animal care is vital to the success of the sport of mushing. As stewards of working

sled dogs, our role requires that we do everything possible to assure their well-being. To accomplish this, it is absolutely essential that mushers (dog drivers) and veterinarians work together on behalf of the dogs, and much effort has been made to establish and maintain a healthy dialogue between the two groups. Only when mushers are properly informed of specific abnormalities to watch for, and actively communicate observations of them to checkpoint trail veterinarians, can the best care be provided for our canine athletes.

Two important organizations have been established for the purpose of gaining and disseminating knowledge about sled dog care. The International Sled Dog Veterinary Medical Association (ISDVMA) is a professional organization dedicated to promoting research and disseminating knowledge in regard to health care. Mush with P.R.I.D.E. (Providing Reliable Information on a Dog's Environment) is a lay organization which addresses kennel management topics.

To be eligible for signing up to enter the Iditarod, mushers must have previously completed qualifying races approved by the Iditarod Trail Committee (ITC). In addition, each musher is assessed by a qualifying review board before their entry is formalized.

The first official function of the Iditarod musher education/preparation process begins with a two-day rookie meeting in the December prior to the race. Rookie mushers are provided with a copy of *The Musher & Veterinary Handbook*, a highly informative manual published by the ISDVMA. Topics such as training/conditioning, food drop preparation, race strategy, equipment selection, nutrition, and of course, veterinary care, are covered. In addition, several letters addressing dog care issues are sent, over the course of the winter, to all mushers. A general musher meeting occurs on Thursday immediately before the start of the race.

Throughout the fall and winter months prior to the race, the average sled dog will have run 2,500–5,000 miles in preparation. As directed by the ITC and required by race rules, mandatory sled dog pre-race screening commences in the early part of February. The screening includes blood testing, ECG recordings, and microchip implants, all provided to the mushers and their dogs at no cost to them. Blood sample collection and ECG recordings are accomplished by the staff of veterinary technicians. All blood results are reviewed by the Chief Veterinarian, and ECGs are analyzed by a

**"TRAIL VETERINARIANS
'LEAPFROG' ALONG
THE RACE COURSE
AS CHECKPOINTS
ARE CLEARED BY THE
MUSHING FIELD"**

PAGES 22 & 23 Enjoying the sun before the race. **BELOW** A section of the Iditarod Trail; **RIGHT** Waiting to race; **BOTTOM** Jumping sled dog at the starting line. Photos by Stuart L. Nelson, Jr, DVM.



veterinary cardiologist. Rules allow pre-race health screening on a maximum of 24 dogs per musher. The maximum number of dogs per team that can start the race is sixteen. Each dog's microchip number is scanned before starting the race, to verify that they have gone through the screening protocols. ECG testing was first begun in 1994; blood testing was initiated in 1998.

In addition to the extensive pre-race testing, every dog is required to have a veterinary physical exam within fourteen days of the race start. Deworming is also mandatory within ten days of beginning the trip to Nome, and vaccinations must be current (Distemper, Hepatitis, Lepto, Parvo (DHLPP versus DHLPP), Bordetella and Rabies; Parainfluenza is not required, but many of the combo vaccines do include Parainfluenza).

All rookie veterinarians are required to attend the ISDVMA Sled Dog Veterinarian Training Seminar (Anchorage) which takes place the Tuesday through Thursday before the Saturday race start. This program was established in 1996 through a combined effort of the ISDVMA and the ITC. The seminar is very helpful in preparing veterinarians for their checkpoint responsibilities, with emphasis on the examination protocol at checkpoints. Topics discussed include cardiology, foot care, examination protocols, nutrition, orthopedics, training/conditioning, and research updates.

Once the race begins, trail veterinarians "leapfrog" along the race course as checkpoints are cleared by the mushing field. The first few checkpoints will have six to seven veterinarians present. As the race progresses and greater distances develop between teams, more checkpoints will be staffed, with an average of three to four veterinarians per checkpoint.

Since 1994, the ITC has required that mushers carry 3"x5" dog team diaries as part of their mandatory equipment. The veterinarian who examines a team at a given checkpoint is responsible for making notations relevant to the medical status of team members and signing the diary

prior to returning it to the musher. Race rules require that the veterinarian and musher both sign the diary at each and every checkpoint. This system has been very helpful as a communication and reference tool for mushers and veterinarians alike. Although not required by race rules, it has also been the goal of our veterinary staff to perform hands-on examinations of every dog at each checkpoint.

It is estimated that over 10,000 routine exams are performed by trail veterinarians during the Iditarod! That represents many long hours of volunteer service. It is essential that we focus on our priorities when the teams are coming and going in rapid succession. The acronym HAW/L, although not perfect, is easy for mushers and veterinarians to use as a guideline in health evaluations (HAW is a voice command to go left).

- H** hydration and heart (rate and rhythm)
- A** attitude and appetite
- W** weight (bodyweight)
- L** lungs

Although no dogs may be added to the team after the start, dogs can be dropped at any checkpoint and for any reason. The term dropped dog merely designates a dog that is no longer continuing as a race participant. A highly organized system is in place to assure that dropped dogs receive excellent care pending return to their home kennel. Since there is no road access along the trail, all personnel and dropped dogs



PAGE 26 FROM LEFT A veterinarian monitors a sled dog's heart rate; sled dogs sleeping on straw beds. **ABOVE** At the starting line.

"THE IDITAROD SLED DOG IS THE ULTIMATE MARATHON ATHLETE, AND A NUMBER OF RESEARCH STUDIES HAVE BEEN UNDERTAKEN DURING THE PAST TWO DECADES TO LEARN MORE ABOUT PHYSIOLOGY, METABOLISM, NUTRITION, AND MEDICAL CONDITIONS WHICH MAY AFFECT THEM"



must fly to their destinations. Depending on where a dog might be dropped, transportation from smaller checkpoints through the hubs of McGrath, Unalakleet, or Nome may be necessary en route to Anchorage. All dropped dogs are evaluated by veterinarians after each flight, including their return to Anchorage. By race rule, the Chief Veterinarian has the authority to review medical records and/or receive status reports on any dog for up to 72 hours after their release from the direct care of the Iditarod veterinary staff.

The Iditarod sled dog is the ultimate marathon athlete, and a number of research studies have been undertaken during the past two decades to learn more about physiology, metabolism, nutrition, and medical conditions which may affect them. Often, such conditions are also experienced by human marathoners and equine athletes. In some cases, the sled dog may serve as a model for humans. In others, the horse may be a model for the dog. It is important to note that these studies have been largely accomplished through the efforts of veterinarians, mushers, researchers, the ITC and other organizations, and advocates of the sport of mushing.

For instance, working sled dogs have been documented to utilize 10,000–12,000 calories a day. This has been demonstrated as the highest metabolic rate of any mammalian species (with a lactating mouse in a cold weather environment recorded as second). If you do the math, that represents the equivalent of the average human adult consuming 50 Big Macs in a 24-hour period. Obviously, nutrition is extremely important to

these dogs, and much research has been done to design ever-improving formulations. Leading dog food companies have been able to take the knowledge gained through these studies to develop better products for the average pet. Optimal formulas for protein content, fibre composition, omega fatty acid balance, and antioxidant supplementation have been established for sled dogs, which has inevitably had an impact on the pet food market. Until the 1990s, most mushers fed their dogs predominantly raw meats, fish, and various types of fat. Today, most mushers are feeding primarily a performance kibble, using meats and fish mainly as snacks, and supplementing with fat only as needed to increase caloric intake. Studies are ongoing to determine how sled dogs metabolize energy sources to enable them to run 125 miles a day, with applications for the potential benefit of homo sapiens.

Research has also demonstrated that cardiac adaptations to conditioning in canine athletes very closely resemble those for elite human marathoners. The data from the ECG recordings obtained in our pre-race canine screening protocols over the years has been used to assess risk factors associated with certain cardiac rhythms. Over the long term, this information may be applicable to humans. In 2010, the American College of Cardiologists (human) was advising all humans to have ECGs performed before becoming involved in formal athletic programs. This is something that the Iditarod had already been doing for fifteen years.

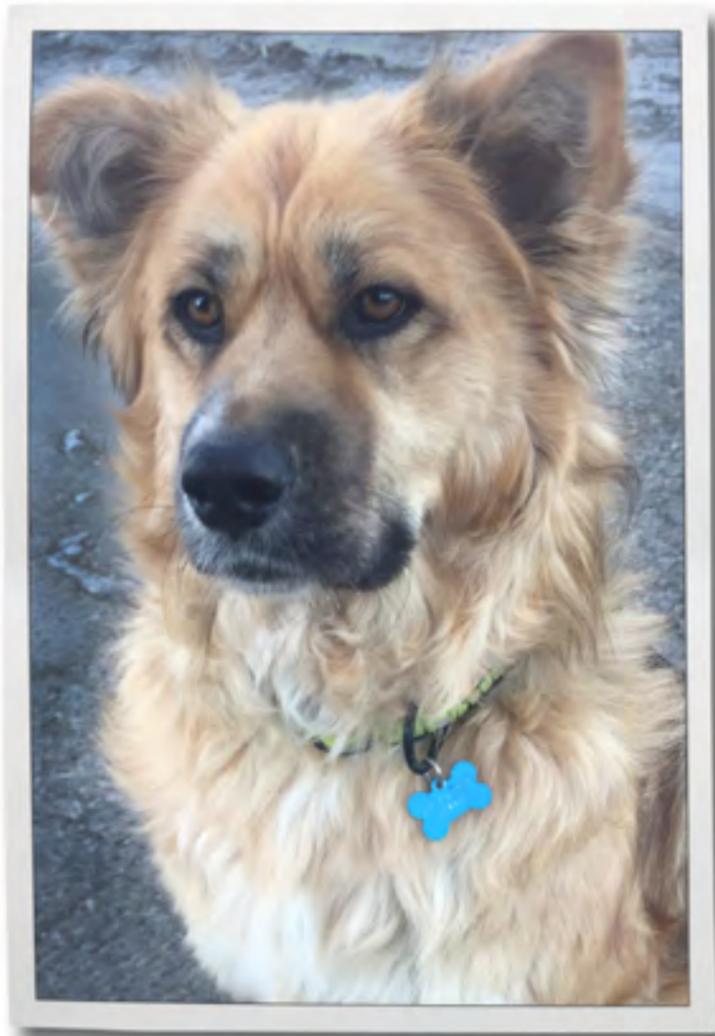
Many advancements in dog care have been achieved since the first Iditarod in 1973. Proper preparation of the mushers, veterinarians, and canine athletes has been a major objective. During the race, mushers and veterinarians work as a team for the well-being of the dogs. This is best accomplished by established methods for examining and evaluating these animals. As part of our stewardship role, we have also been very proactive in promoting research studies that have enabled us to design highly effective preventative and treatment protocols. By making dog care a priority, The Last Great Race on Earth will continue to grow and thrive. [WCV](#)

GRIFFIN'S STORY

BY KELSEY MacNEIL, RVT

One early morning in December of 2015, a client came in from the blistering minus 20-degree cold and asked if I could help him get his dog out of his pick-up truck. As I climbed into the back of the truck, I found a small kennel, frozen down to the bed and covered in snow. Inside was a German Shepherd X, curled up in a ball and covered in a frosting of ice and snow. I opened the kennel and tried to encourage him to come out, but he didn't move or make any attempt to leave. His owner explained that he had been in the kennel for two days as they drove down from a remote, northern community to see the vet. I was able to slowly pull the dog out and passed him to his owner, who stood him on the ground. As I climbed back out of the truck, tears welled up in my eyes at the condition of the young dog. He was missing all the hair on his face and legs, and was covered in open sores. His yeasty odor was horrendous, and as he stood there, blood began to run down his legs from his cracked skin. At around 40lbs, he was severely malnourished, and he was mentally completely shut down.

He was quickly diagnosed with a severe case of demodetic mange and secondary bacterial infections. Once the owner was informed that this was not a normal condition for a dog to be in, he was more than willing to hospitalize and treat him. He stayed in clinic with us for a week, while we started the standard Ivomec treatment. His sickly body was exhausted, and he did nothing but sleep and eat. As he began to improve, little bits of personality began to show. He would slowly wag his tail when someone talked to him, and he was extremely patient and tolerant with his treatments. After a week, his owner decided to take him home, but the dog would be staying with a relative in town so he could return for rechecks. Although his owner would call in and report that the dog was improving, he never came back to the clinic.



PHOTOS BY KELSEY MacNEIL, RVT

Nine months later, a photo popped up on my Facebook news feed, from our local humane society, of a dog who had just been surrendered as his owners could no longer keep up with his veterinary care. The soulful look in his eyes grabbed at me, and I remembered the sad dog from months before whose condition had broken my heart, and who I had occasionally wondered about since. I immediately got on the phone and called all of my humane society contacts. I had to get involved and do whatever I could for this boy.

With my skills as a veterinary technologist, the humane society were more than happy to send him to me to foster, knowing I could handle his variety of medical issues. His condition had certainly improved from our last encounter, and he had put on some weight, but he still had several large open sores on his body from scratching, significant hair loss, and terrible ear infections. He perked up, and his tailed wagged when he saw me, and so I was sold on this stinky, sweet dog with a big heart. I named him Griffin, which seemed to acknowledge the strength and will to recover that I knew he had in him.

“AND SO I WAS SOLD ON THIS STINKY, SWEET DOG WITH A BIG HEART”

We began to tackle Griffin's medical issues, treating his ear infections and skin lesions. We started a new protocol for demodex treatment of Nexguard monthly, and he required medicated baths twice a week. As the weeks progressed, his skin began to heal and by the third week after his initial Nexguard dose, he had probably an 80% decrease in his mite load, and was noticeably less pruritic. His lesions were almost gone, and his skin scrapings revealed only two mites!

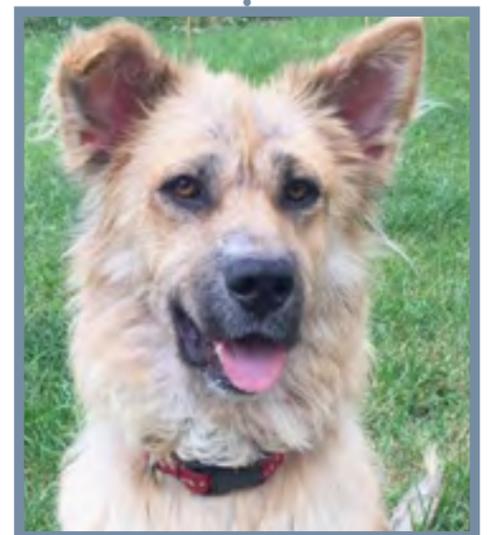
Griff's personality began to shine. When he came to me, he was a dog who was completely shut down both mentally and emotionally. He was frightened of being in the house, and he made himself as inconspicuous as possible. Within days, he was starting to respond to me and seek out attention, and by the end of the first few weeks, he started to run around in the yard and play. Soon he was acting like a giant goof, trying to engage with other dogs, and had developed a taste for expensive shoes—a sure, if frustrating, sign that he was becoming a normal dog. Griffin's activity level increased daily, and it was amazing to see the transformation taking place before my eyes. I fell completely in love with this dog who, despite living his entire life in discomfort and receiving minimal kindness and compassion from people, was so willing to trust humans and live his life with endless joy.

After about four weeks, he was noticeably growing more hair on his face and legs. He had gained 10 lbs., and was finally at a good body condition score. Six weeks after he came into my care, he was ready to begin the search for his own family—another vet tech and her family. It has been just over a year since I met him, and he is now a completely different dog. He is outgoing, funny, playful, and so very loving. He is thriving in his new home with kids to play with and burn off his energy and his endless desire to play and make up for all the time lost while he was sick. I have never been so proud of an animal, which seems silly, but he won my heart, and everyone else's.

Griffin did not necessarily need an RVT to care for him; any dedicated foster or invested owner would have been able to manage it. However, I think that being a vet tech has given me the compassion and patience needed to take in a dog like him when many others might not have been willing to do so. To be able to follow his case so personally was an interesting experience, as RVTs so often send patients home to their owners and can only check in every so often. I have been able to step into an owner's shoes in regards to dealing with a medically challenging pet. Coming to know the frustration with long, drawn-out cases and not see any fast results, has, I think, made me a more knowledgeable tech. I now have a better ability to understand frustrations and communicate with clients in similar situations.

Since becoming involved with the Prince George Humane Society (PGHS) via Griffin, I have made an effort to continue to assist them when needed with medical fosters that might be challenging for other people to manage. I have also realized that I am passionate about humane

GRIFFIN'S PROGRESS, FROM TOP Griffin when he first arrived at the clinic; on his surrender to PGHS nine months later; approximately one month after Kelsey fostered him. **OPPOSITE PAGE** Griffin today, after adoption.



education of the people in the remote communities that the PGHS serves. Meeting Griffin's original owner was an eye opener. He cared about his dog enough to drive for two days to get him treatment, but was truly unaware of the severity of his dog's condition, because that is what he saw every day in his community. Most times, the stray or partially owned dogs in these communities are left to fend for themselves, scavenge for food, roam in packs, reproduce constantly, and are almost always left without veterinary treatment. Dogs are routinely hit by cars or quads on purpose—to "slow them down"—and are left to suffer their injuries without any care. It seems that many people have not been taught what most of us learn early on, that animals feel, and that they deserve care and empathy. The lack of resources and humane education for the people up north creates a dire situation, and there is no easy way to fix it. Griffin is one of the lucky ones; his owner, once educated that it was possible to do better for his dog, was more than happy to do so.

The PGHS and other organizations have been working extremely hard to educate people on how to properly care for their pets. They regularly send food and supplies, and are developing positive relationships in the hopes of helping more animals. We are hoping to organize vaccine and spay and neuter clinics to reduce the stray population. As an RVT, I am very interested in sharing basic medical knowledge and practices, which will hopefully improve the quality of life of both owned and stray animals. Unfortunately, developing these programs and raising funds for them is a long and time-consuming project. In the meantime, we continue to do

"SOON HE WAS ACTING LIKE A GIANT GOOF, TRYING TO ENGAGE WITH OTHER DOGS, AND HAD DEVELOPED A TASTE FOR EXPENSIVE SHOES"

whatever is possible to help the animals we have access to. The PGHS continues to accept animals from these communities weekly, many of whom suffer with poorly healed broken bones, are malnourished, are pregnant or nursing pups, and who have had minimal handling by people. We are very lucky that most of the dogs sent to us have spectacular personalities and quickly become loving and devoted pets to those who care for them.

Griffin's story is not unique, and my involvement as an RVT is not unique either. As part of such a caring and compassionate profession, there are many similar stories of people in the veterinary field going above and beyond to help animals in need. It has been an extremely rewarding endeavour to be involved in this incredible dog's journey, and I hope that it inspires others to go out of their comfort zone and get involved with rescue groups who are doing great work to make a change for animals in BC. [WCV](#)



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SHELTER DESIGN

BY EMILIA GORDON, DVM

IMAGE BY ALEXEYSUN / SHUTTERSTOCK.COM

On June 17th, 2016, the BCSPCA opened the new 7,460-square-foot Nanaimo and District Community Animal Centre. This much-needed facility replaces a smaller, aging facility and now serves as a community hub for animal-related activities including sheltering, cruelty investigations, youth camps, and workshops.

New community offerings include two dog parks, a dog washing area, a patio, and a retail area.

Often described as a standard from an animal health and welfare standpoint, what does this really mean in a shelter? Shelter medicine blends individual and population level care with a strong focus on medical and behavioural wellness. Many shelter animals spend most or all of their time in their primary housing enclosures, so housing design is one of the most important elements in shelter medicine. There is a growing body of research and experience concerning various housing strategies. The best housing minimizes both stress and disease transmission. This is important not just in shelters, but also in private veterinary practice.

We are guided by the Five Freedoms originally developed in the UK in the 1970s for farm animals, but now widely accepted internationally. The Five Freedoms state that all animals should have, at minimum:

1. Freedom from hunger and thirst
2. Freedom from pain, injury, and disease
3. Freedom from distress
4. Freedom from discomfort
5. Freedom to express behaviours that promote well-being

Translated into shelter design concepts for common companion animal species, this means that shelter housing must offer space for normal postures and movement, accessible and uncontaminated food and water, bedding, a hiding place, and a resting/eating area that is separate from the elimination area.

This may sound simple, but consider the example of cats. Many traditional animal shelters and veterinary hospitals house cats in cages with a width from 24 inches to 36 inches. If a cat is hospitalized, boarded, or sheltered overnight in a cage like this with food, water, litter, and a bed, what do we often see the next morning? We arrive to newspaper, litter, and bedding everywhere, and the cat hiding in the litterbox or pacing at the front of the cage. Alternatively, the cat may be terrified to move and the entire contents of the cage exactly as left the previous night, with no ingestion of food or water and no elimination.

The housing just described does not meet the Five Freedoms for cats. When cats are too scared, anxious, or frustrated to use the resources we provide, from the cat's standpoint we are not really providing these resources. These stressed cats may recover more slowly from illness or surgery, and in a shelter setting will be more likely to get sick and less likely to display behaviours that appeal to adopters.



CLOCKWISE FROM TOP LEFT A dog awaits adoption in a custom-designed kennel. The kennel door has a glass upper portion, allowing viewing and light entry. The lower portion is an open grate, allowing interaction, reward-based training at the cage front, and air flow. The lower portion can be covered with a sliding panel.



A custom-designed double-compartment dog kennel with a guillotine door allowing outdoor access. The guillotine door is off-centre, providing a hiding space behind the wall. A second door on the side wall leads to a similar kennel and can be left open, creating a double kennel for bonded pairs or dogs requiring more space. Concrete block walls and sealed concrete floors are easy to clean.

A 60-inch wide cat kennel offers plenty of space for a HPG box, litterbox that is widely separated from food and water, extra bedding, and uncovered floor space. The cage also contains enrichment items such as toys and a scratching pad.

Cat communal setup that includes choice of outdoor space, opportunities to hide, roam, and climb, and space for multiple litterboxes and food and water bowls.

Photos courtesy of the BCSPCA.

“HOUSING DESIGN IS ONE OF THE MOST IMPORTANT ELEMENTS IN SHELTER MEDICINE”

The Association of Shelter Veterinarians (ASV) released Guidelines for Standards of Care in Animal Shelters in 2010 establishing minimum standards of care, as well as best and unacceptable practices. In 2013, the Canadian Standards of Care in Animal Shelters were published based on the ASV Guidelines and are currently in use by the BCSPCA.

These guidelines tell us that cats should have 2 feet of separation between resources such as food/water and litter, that individually housed cats need 11 square feet of floor space, and that group housed cats need 18 square feet of floor space per cat. The best way to provide this is to use double-compartment kennels, with each compartment being at least 30 inches wide,

or single compartment kennels/runs/small rooms that are at least 60 inches wide, or communal rooms.

If communal rooms are used, cats should be grouped based on age, social behaviour, and health status, and ideally an all-in/all-out system should be used with a maximum group size of 10–15 cats, regardless of room size. Cat housing should contain a hiding place, elevated surfaces, at least one area with thick bedding, and opportunities for scratching.

When planning and building a new animal shelter, one of the most important concepts is to allow for flexibility—both in terms of where staff can house animals, and in terms of allowing animals choices within their environments. A mixture of sizes and configurations of rooms, kennels, and cages with spaces that allow animal-human interaction (if desired by the animal) is key. Other features of the Community Animal Centre that promote well-being for shelter animals include indoor/outdoor access for cats and similar access for dogs; natural light in all animal housing rooms; and complete species separation between cats, dogs, and small mammals.

When designing animal housing in both shelters and veterinary hospitals, we must ask ourselves what the animals will be seeing, hearing, smelling, feeling, and learning. There are many other considerations including budget, number of cages needed, materials, etc. But the most important question should always be: what does this animal need during her stay? **WCV**

RESOURCES
<https://www.canadianveterinarians.net/documents/canadian-standards-of-care-in-animal-shelter>
<http://www.sheltermedicine.com/library/facility-design-and-animal-housing>



Glen and Pat Armstrong with Darcey, another feline who made it home again thanks to her microchip. Photo courtesy of the BCSPCA.

REUNITING PETS AND PEOPLE WITH THE BC PET REGISTRY

BY AIDAN REID, BCom

“OVER ONE MILLION ANIMALS ARE LOST EACH YEAR, AND APPROXIMATELY 95% OF LOST CATS NEVER MAKE THEIR WAY BACK HOME”

Finding Dory may be a fictional animated movie, but for a Sparwood family it was reality. Earlier this year, Teena Blackmore adopted tabby cat Dory from the Cranbrook BCSPCA shelter, but lost her while travelling to Alberta. Thanks to Dory's microchip being registered in the BC Pet Registry, and the staff of a sign shop who cared for the footloose feline, Dory is now back in her Sparwood home safe and sound.

Unfortunately, Dory and her family are a rare case. In Canada, over one million animals are lost each year, and approximately 95% of lost cats never make their way back home.

The BC Pet Registry, owned and operated by the BCSPCA, is working to reverse this trend. The Registry was created with the sole goal of reuniting pets with their people, while reducing the amount of lost animals that enter shelters each year.

Microchips have been changing the game of pet identification (ID) and have quickly become the most trusted form of permanent ID. The BC Pet Registry's microchip program has already seen great success and has been adopted by veterinary clinics and hospitals province-wide.

The BC Pet Registry allows any microchip, tattoo, or license to be registered using the online portal (www.bcpetregistry.ca). To date, over 30,000 animals have been registered. The system is easy to manage and provides a value-added service to veterinary clients. The Registry decreases the amount of paperwork for veterinarians and allows pet guardians to update their contact information as often as they like. Veterinarians can feel confident knowing Registry microchips are ISO-approved and internationally recognized.

This year, the BC Pet Registry has introduced a grant program which veterinarians can apply for complimentary annual registrations for low-income clients. The Registry's top priority is making this program accessible. Getting lost is a traumatic experience that no pet, or pet guardian, should have to suffer.

For more information, visit www.bcpetregistry.ca. **WCV**

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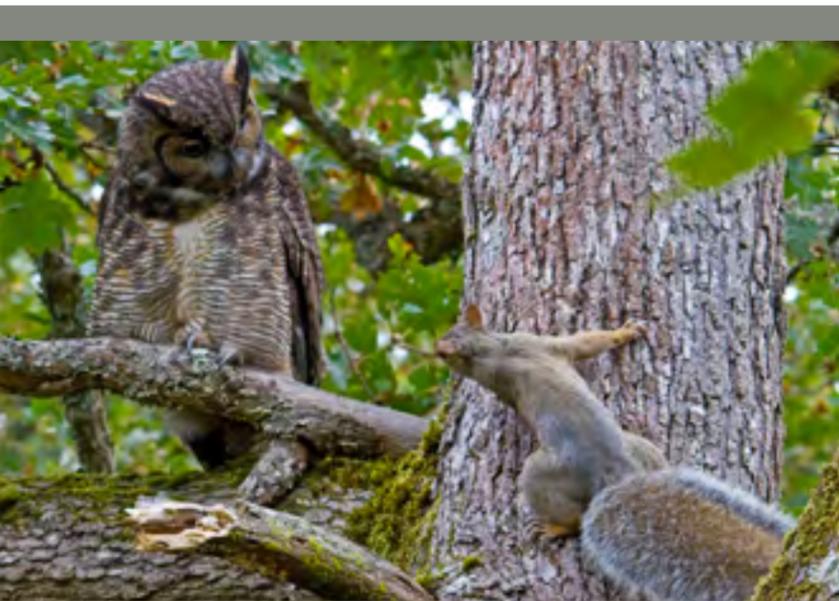
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Great Horned Owl and Grey Squirrel. Photo by Bruce Tuck

ENVIRONMENTAL APPEAL BOARD DECISION MUCH MORE THAN FATE OF SQUIRRELS

BY SARA DUBOIS, BSc, MSc, PhD

In July 2016, a decade-long debate about the fate of thousands of wild animals cared for by wildlife rehabilitators across the province was heard by the BC Environmental Appeal Board (EAB), who ruled in favour of the BCSPCA. The lengthy and costly process launched by the province's largest animal welfare charity to appeal a permit decision by the BC Ministry of Forests, Lands and Natural Resource Operations was not just to prove the need for compassionate care and biologically responsible practices. The nature of government decision-making for wildlife was revealed, as the policies and actions of Ministry staff were found by the EAB to be "inconsiderate, procedurally unfair—even harsh."

The story began in 2005, when rehabilitation permits for the BCSPCA's Wild Animal Rehabilitation Centre (Wild ARC) in Metchosin were changed without warning to state that the facility could no longer release Schedule C wildlife (e.g., grey squirrels, cottontails, pigeons, sparrows, starlings, and crows), which it had done under permit since opening in 1997. Without scientific justification (measurable disease or invasive activities), Wild ARC refused to kill healthy Schedule C animals that could be rehabilitated and agreed to sterilize grey squirrels to appease the Ministry's speculative concerns. Given the Ministry had no plans for where these animals would go, no public education strategy, no species eradication plan, and no scientific evidence describing the effects of these animals in local ecosystems, the permit decision was quickly reversed. Wild ARC continued to care for these animals for the following decade, an activity that was, and is, consistent with existing provincial regulations that allow homeowners to trap and release Schedule C animals on private property.

Since 1997, Wild ARC has treated ~40,000 injured, sick, and orphaned wild animals, including 3,013 animals most recently in 2016 with the help of its six staff Animal Health Technicians. In general, only 30–40% of wildlife rehabilitation patients are released given the severity of their injuries

or health; in 2014, this resulted in the release of only 72 sterilized grey squirrels into an estimated population of 75,000, within the 50-year-long established urban grey squirrel habitat in the Capital Regional District.

Grey squirrels are native to eastern Canada, and have been established for more than 100 years in Greater Vancouver, integrated into local ecosystems as prey for other species. Research conducted in BC (Hwang & Larivière 2006; Gonzales 2005; Gonzales et al. 2008) has shown little to no correlation between native and non-native squirrel populations, with habitat alteration being the biggest factor for native squirrel declines. Despite this, the Ministry has imposed similar permit restrictions at other BC wildlife rehabilitation centres and even notified veterinarians that they should not treat and release any Schedule C animals. This Ministry policy directly opposes compassionate and biologically responsible wildlife rehabilitation best practices for non-native populations that are firmly established in specific areas with no chance of eradication.

The main difference between Ministry policy and rehabilitation best practices lies in their approaches to non-native animals. The position of many biologists and rehabilitators is that not all non-native animals are invasive—some adapt and do not cause negative effects on other animals or ecosystems. As climate change progresses, many species will move into areas not previously occupied and could be considered

non-native to those habitats. Rehabilitators should never release non-native species to new unestablished areas, or release those non-natives that have measurable effects on local species (e.g., Wild ARC euthanizes bullfrogs and rats). Professional wildlife rehabilitators also do not release red-eared sliders, feral rabbits, or other abandoned pets.

The BCSPCA's position on this issue was backed by the Wildlife Rehabilitators Network of BC, who acted as a Participant in the appeal by submitting evidence, and by the College of Veterinarians of BC, who submitted a support letter given that many veterinarians refer or transfer these animals to wildlife rehabilitators. The BCSPCA also commissioned an independent expert report by a Registered Professional Biologist. The report determined it was unclear how the release of small numbers of Schedule C animals into the same areas from which they came could contribute to the spread of so-called invasive species.

The EAB agreed that Wild ARC's activities were not contrary to the proper management of wildlife resources in BC, and also flagged as an issue the complete lack of a transition plan and a means to educate the public regarding the change in the Ministry's policy

"THE POSITION OF MANY BIOLOGISTS AND REHABILITATORS IS THAT NOT ALL NON-NATIVE ANIMALS ARE INVASIVE—SOME ADAPT AND DO NOT CAUSE NEGATIVE EFFECTS ON OTHER ANIMALS OR ECOSYSTEMS"

concerning non-native Schedule C wildlife. The EAB also invited the BCSPCA to advise the EAB if it wanted to seek costs from the Ministry. The BCSPCA reached a settlement with the Ministry and received a partial reimbursement towards legal costs.

The BCSPCA and Wild ARC staff received the EAB decision with relief as they had long questioned the rationale and science behind a government policy that dictated they could not care for injured, sick, and orphaned Schedule C animals, who had been unfairly blacklisted

A summary and the full decision are available online under "2016" at <http://www.eab.gov.bc.ca/wildlife>. [WCV](#)

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→ The BC Pet Registry has assumed administration of the Provincial Tattoo Program, previously administered by the CVBC. The BC Pet Registry is a unique registry system that recognizes any microchip, tattoo or license and allows unlimited free profile updates for registered pet guardians. Currently, more than 30,000 pets are registered with BC Pet Registry. Please see the article on page 34. For more information, please visit www.bcpetregistry.ca.

→ In 2017, Canada will undergo its most comprehensive evaluation of veterinary services to date. The CFIA will be coordinating an assessment of the quality of veterinary infrastructure across the country and how it contributes to maintaining and strengthening international trade, ensuring the health of our nation's animals, and protecting the public from the risk of zoonotic disease. The evaluation will be conducted by the World Organisation for Animal Health and will involve the CFIA, federal and provincial governments, and representatives from the veterinary sectors and animal industry. For more information, please visit www.oie.int/support-to-oie-members/pvs-evaluations/oie-pvs-tool/.

→ A study published in the Journal of Anatomy has made an important breakthrough in the examination of blood vessels in the brain giving scientists a clearer understanding of how dementia, brain cancer and stroke can affect veins and capillaries in this organ. Working collaboratively researchers from the University of Surrey (UK) and the Federal University of Sao Paulo developed an innovative technique to examine and quantify blood vessels in the brain using 3D Image Analysis (Stereology) procedures. For more information, please visit www.surrey.ac.uk/.

→ Researchers from the University of Surrey (UK) School of Veterinary Medicine have made advances in the study of the Chiari malformation and Syringomyelia disorder in toy dogs. Continuing to build on their specialist work in this area, in collaboration with neurologists at Fitzpatrick Referrals and Helsinki University and a geneticist at the University of Montreal, researchers have developed two separate studies, both published today in PLOS ONE, to learn more about these painful conditions affecting toy dogs. For more information, please visit www.surrey.ac.uk/.

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To place a classified ad in West Coast Veterinarian contact Inga Liimatta at ingal@telus.net. Deadline for ad booking is April 20, 2017 for the Summer issue.

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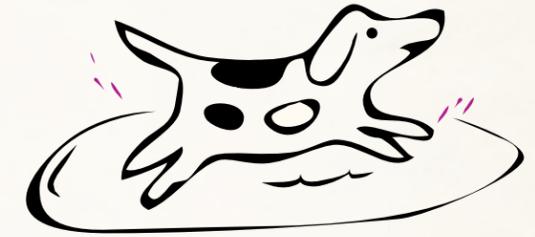
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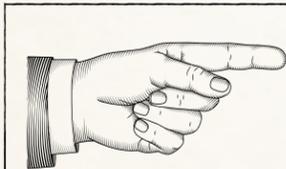
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MARCH

5-9 **Western Veterinary Conference 2017**
Las Vegas, NV
www.wvc.org/conference

7-9 **2017 Western Canadian Dairy Seminar**
Edmonton, AB
www.wcds.ca

8-12 **2017 AAVMC Annual Conference & Iverson Bell Symposium**
Washington, DC
www.amvq.quebec/fr/evenements/colloques-2016

10-12 **California VMA 2017 Spring Seminar in Yosemite**
Yosemite, CA
www.veterinarycalendar.dvm360.com/california-vma-2017-spring-seminar-yosemite

18 **Cruciates in Calgary**
Calgary, AB
www.focusandflourish.com

24-26 **2017 American Academy of Veterinary Acupuncture Annual Meeting**
Savannah, GA
www.aava.org

30-2 **AAHA Nashville 2017**
Nashville, TN
www.aaha.org/nashville/

APRIL

21-30 **Atlantic Provinces Veterinary Conference**
Halifax, NS
www.apvc.org

21-23 **28th Congress of the AMVQ**
Montreal, QC.
www.amvq.quebec/fr/evenements/colloques-2016

29-30 **2017 San Diego Spring Veterinary Conference: Emergency & Critical Care for the General Practitioner**
San Diego, CA
www.sdcvma.org

MAY

6-7 **Intermediate Abdominal Ultrasound**
Calgary, AB
www.scilvet.ca/scil-vet-academy/seminar-schedule/event/641/

7-10 **8th International Conference on Emerging Zoonoses**
Manhattan, KS
www.zoonoses-conferences.com

16 **CVMA-SBCV Chapter Cat Healthy Seminar**
Langley, BC

17 **CVMA-SBCV Chapter Cat Healthy Seminar**
Victoria, BC

JUNE

23-24 **Current Thoughts on Managing Common Medical Problems in Practice**
Vancouver, BC
www.ivseminars.com/seminars/description/current_thoughts_on_managing_common_medical_problems_in_practice-vancouver

JULY

13-16 **2017 CVMA Convention**
Charlottetown, PEI
www.canadianveterinarians.net

SAVE THE DATE

NOV 3-5 **CVMA-SBCV Conference & Trade Show**
Vancouver, BC
www.canadianveterinarians.net/sbcv/

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