

WEST COAST VETERINARIAN

DECEMBER 2022 | N° 49

ANAESTHESIA FOR BRACHYCEPHALIC DENTISTRY



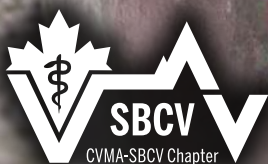
TELEMEDICINE

SOCIAL WORKERS IN
VETERINARY MEDICINE

FELINE HEALTH IN
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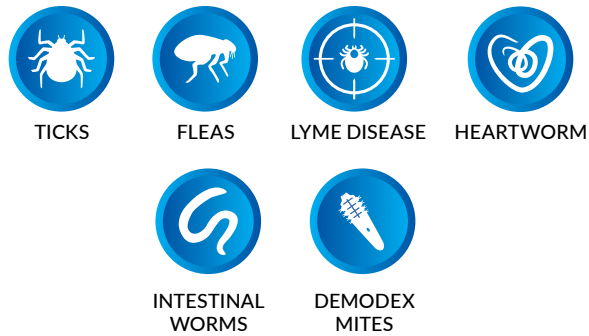
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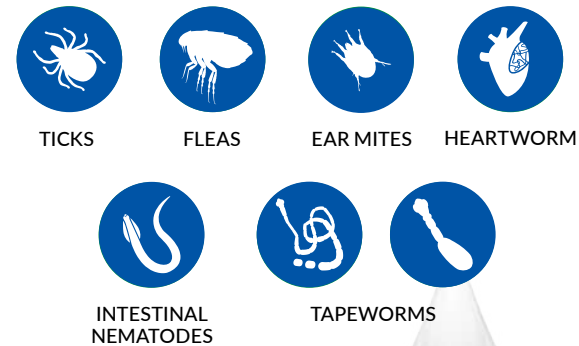


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COREY VAN'T HAAFF
EDITOR

» TO THE EDITOR

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

» ON THE COVER

Face mask pre-oxygenation before induction is needed in brachycephalic breeds.

I love working on the December issue of this magazine. December for me represents a time of rest. In the office, by December, we have finished a terribly busy October and a chaotic November delivering the SBCV Fall Conference and Trade Show, this year in person with the ability to attend remotely. As we prepare the December issue of *West Coast Veterinarian*, my 44th issue (11 years; where did the time go?), we enjoy looking back at all the SBCV's accomplishments and challenges of 2022 and take a few moments to bask in all we have accomplished. More than that, for me, is the reprieve I get before launching into 2023. The new year will bring new work, new enthusiasm, and new ways of addressing the serious and significant challenges ahead of us. I love that, at a time when many others I know are in the thick of the hustle and bustle of the coming holidays, I usually take some time off, and bask in some rest and relaxation with a book or magazine in hand, sitting close to the fireplace, always with my dogs by my side and the cat enjoying his own solitude with distance from the dogs.

This is the second year in the new (to us) home Dan and I bought in May 2021. If you want some horror stories, I'm happy to share with you details of selling, buying, and moving mid-pandemic. But once here, we had our workers ready to renovate, and it culminated in a kitchen I designed exactly for me, that supports my need to cook and bake and display my food just so. December allows me more opportunities to share what I create in this space and gives me a chance to experiment with new foods or familiar ingredients done in a new way.

I love this time of year when cowl-neck sweaters and thick fuzzy slippers are what I wear in the house, Hudson's Bay blankets litter the sofa, and the scents in the air lull me into an extended sense of calm and hope, no matter what is going on.

As much as I enjoy the briskness of a new fall—my favourite season—it is really December, the final autumn month, that brings me peace.

My SBCV members are some of my favourite people—the best-loved profession and the most important contributors to my animals' health and well-being (after Mommy)—and I wish each of you a month consisting mostly of great food, time to relax, the love of an animal, something transformative to read, and mostly, above all else, a sense of peace and hope for what is yet to come. [WCV](#)

Email: wceditor@gmail.com



Stephanie Minkova receiving the SBCV Scholarship Award (LEFT TO RIGHT: Dr. Gillian Muir, Stephanie Minkova, and Dr. Al Longair).



Josephine Lee receiving the SBCV Leadership Award (LEFT TO RIGHT: Dr. Gillian Muir, Josephine Lee, and Dr. Al Longair).

WCV

DECEMBER 2022

WEST COAST VETERINARIAN ISSUE 49

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VETERINARIAN

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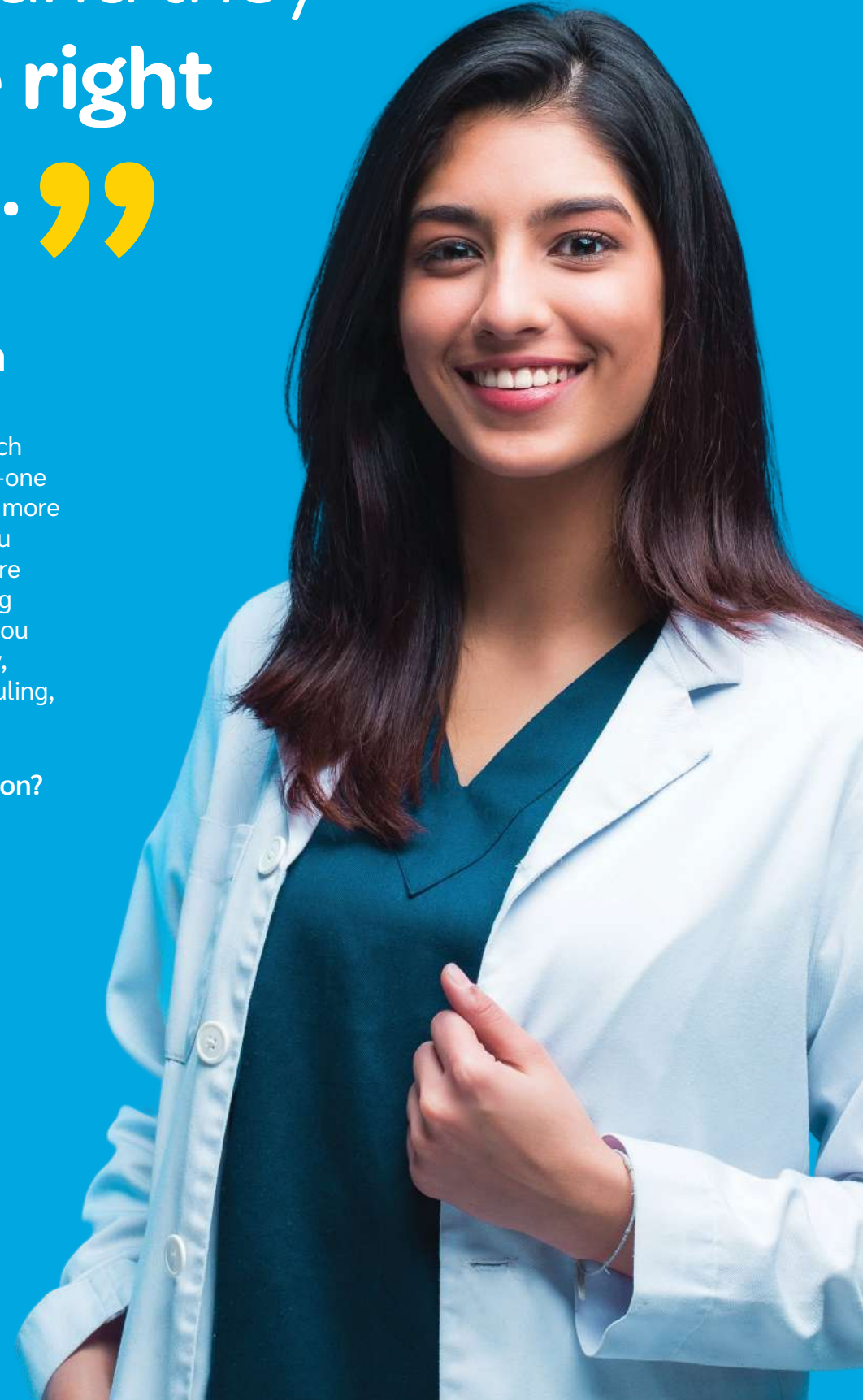
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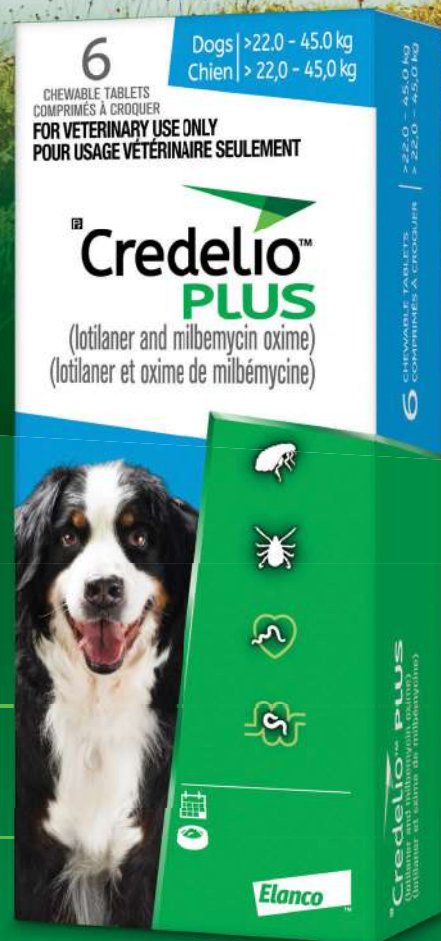
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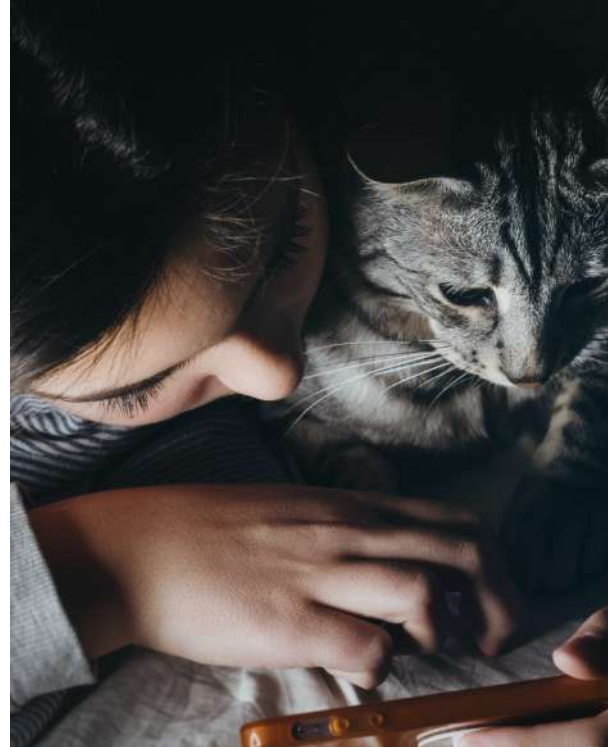
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1. Rufener L, Danelli V, Bertrand D, Sager H. The novel isoxazoline ectoparasiticide lotilaner (Credelio[™]): a non-competitive antagonist specific to invertebrates γ -aminobutyric acid-gated chloride channels (GABACs). Parasites & Vectors. 2017 Dec;10(1):1-5.
2. Elanco CVMP assessment report for Credelio Plus CA 2021

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KOHARIK ARMAN, BSc, DVM, graduated from the Atlantic Veterinary College in 2007 and entered feline-specific practice in Ottawa. She moved to Vancouver in early 2009 and worked at Cats Only Animal Hospital for almost 13 years. She also did some locum work at North West Nuclear Medicine for Animals, is a member of the Board of Directors of the CVMA-SBCV Chapter, and is currently working as a veterinary consultant for TELUS Health MyPet.



THERESA BURNS, MSc, PhD, DVM, is the chief veterinarian of BC, and is the former director of CAHSS. She is a veterinary epidemiologist and has experience working as a practising veterinarian in mixed, equine, and small animal practices. She received DVM and MSc degrees from the Western College of Veterinary Medicine and a PhD in Epidemiology from the University of Guelph. Over her career, Dr. Burns has had the opportunity to use methods from multiple disciplines to collaborate on complex issues at the interface of human, animal, and environmental health in Canada and in other countries. She is interested in understanding systems and stakeholder perspectives to develop real-world solutions to complex problems.



NATALIE CRUZ, MSW, RSW, is a veterinary social worker. She did her Bachelor of Social Work at Thompson Rivers University and her Master of Social Work at the University of British Columbia. She has worked within a variety of settings for over 10 years, including mental health, developmental disabilities, in-patient psychiatry, emergency room, correctional facility, long-term care, and community work.



BAILEY EAGAN, MSc, is currently a PhD student in Applied Animal Biology in the University of British Columbia's Animal Welfare Program. She is an animal behaviour researcher with data science expertise, working to advance knowledge in applicable, effective, evidence-informed action to improve the lives of shelter animals. She completed the study described in this issue as part of her PhD.



BEN EAGAN, BSc, MSc, completed a BSc in Physics at Queens University, and an MSc in High-Performance Computing at the University of Edinburgh. He has worked in green energy, geophysics, embedded systems, and information retrieval. He is currently a software development manager at Shopify, working on search relevance for the Shop App. He is also active in the DIY community, with a blog called *The Cyber Omelette*, and an interest in computer vision.



LAUREN FRASER, MSc, CHBC, completed her MSc in clinical animal behaviour through the University of Edinburgh's Royal (Dick) School of Veterinary Studies. Her research there examined the behaviour of horses subjected to forced "laying down" during training. She sees horses, dogs, and cats with behaviour problems, both in person and remotely. She also teaches and lectures on horse behaviour and training.



NICOLETTE JOOSTING, BSc, BVSc, DVM, graduated with honours from the University of Pretoria (Onderstepoort) in South Africa in 1998 and has been practising in Canada since. After closing the Vancouver Feline Hospital and the Vancouver Feline Veterinary Housecall Services, her home care practice is based in Harrison Hot Springs.



ELAINE KLEMMENSEN, DVM, CEC, is always up for an adventure, especially if it involves people, pets, and creating connections in veterinary medicine. A self-described nerd about leadership, workplace culture, and organizational development, Dr. Klemmensen is a Certified Executive Coach holding the ACC-level certification with the International Coaching Federation as well as a certificate in Values-Based Leadership. Dedicated to helping veterinarians and their teams move from surviving to thriving, she founded Evolve Leadership Coaching and Consulting and is currently studying visual facilitation and strategic thinking. She lives in the beautiful West Kootenays and when not learning something new is most likely exploring the world by bicycle with her husband, Rob.



DORIS LEUNG, BSc, MPH, DVM, is a veterinary epidemiologist with the Ministry of Agriculture, Food, and Fisheries and the communications lead with the Canadian Animal Health Surveillance System (CAHSS). She graduated from the Ontario Veterinary College in 2014 and obtained her Master of Public Health from the University of British Columbia in 2018. Her professional interests are in One Health, disease surveillance, veterinary epidemiology, and health communication. She currently lives in Vancouver, British Columbia.



JOCELYN MARSH, RVT, completed her diploma in Veterinary Technology at Douglas College in 2019. Since then, she has worked in small animal medicine as a Registered Veterinary Technician, and recently decided to pursue her passion for mentorship by accepting a position with the Veterinary Technology program at Douglas College. She holds a special interest in laboratory procedures, and you will often find her near the microscope while in practice. Outside of work, she loves to work on the Love Our Oceans Project, creating social media posts to inspire others, getting outdoors for a walk or bike ride with her partner, Glenn, or hanging out with her rescue cat, Bunny.



ALEXANDRA PROTOPOVA, PhD, CAAB, has a doctorate in behaviour analysis from the University of Florida. She is an assistant professor in the University of British Columbia's Animal Welfare Program. Her research focuses on the physiology, behaviour, and welfare problems experienced by companion animals housed in shelters and pet homes.



ADRIANA REGALADO, MVZ, AVDC, graduated from the University of Guadalajara, Mexico, in 2000. During her internship at the Small Animal University Hospital at the University of Guadalajara, she published a manual of gastroenterology of dogs and cats. She moved to Vancouver in 2005, where she worked as a veterinary technician while preparing for her NAVLE and CPE exams. Dr. Regalado joined the West Coast Veterinary Dental Services team, where she completed a residency program and became a Diplomate of the American Veterinary Dental College. Dr. Regalado has a particular interest in BOAS and brachycephalic dental pathologies.



MARGIE SCHERK, DVM, DABVP (Feline), graduated from Ontario Veterinary College in 1982. In 1986 she opened Cats Only Veterinary Clinic in Vancouver, practising there until 2008. Dr. Scherk became board certified in feline practice by the American Board of Veterinary Practitioners in 1995, recertifying in 2004 and 2014. She founded the feline medicine folder on VIN in 1994. An active international speaker and past president of the AAEP, Dr. Scherk has authored numerous book chapters and scientific papers and is the co-editor of the *Journal of Feline Medicine and Surgery*.



CORRINE SEARLE, DVM, is a 2001 WCVM graduate. She is a small animal general practitioner with 19 years of locum work and two years of running her own practice in the lower mainland of BC.



MELISSA STEPHENS, BSc, DVM, completed a Bachelor of Science in Cellular and Molecular Biology at Simon Fraser University before going on to study at WCVM. She graduated with her Doctor of Veterinary Medicine in 2016 and immediately began working in a small animal clinic in White Rock. Since 2017, she has been working as a small animal veterinarian at Scottsdale Veterinary Hospital in her hometown of Surrey.



BEI SUN, MSc, CIH, CRSP, is a Certified Industrial Hygienist and a Canadian Registered Safety Professional. She has been a prevention officer with WorkSafeBC since 2014. Before WorkSafeBC, she worked as an occupational health and safety consultant and evaluated worker exposure to contaminants in a variety of industries, such as manufacturing, mining, transportation, health care, and construction.

Welcome to my third one-year term as president of the Society of BC Veterinarians. As I look back over the last handful of years, there have been many challenges. Of course COVID-19 affected everyone in one way or another. Before March 22, an increasing demand for veterinarians had us hard at work trying to convince our provincial government to increase the number of students training to become veterinarians at WCVM. We also had to discuss with clients why there was a shortage of veterinarians. When COVID was added, staff illness made it more difficult to help our clients when fewer people were available to work. It is good that the impact of COVID is decreasing, but we have to continue to be very cautious to minimize transmission of the virus.

After many public campaigns about the potential to increase veterinary students at WCVM through the inter-provincial agreement, in April of this year we finally heard that for the 2022/23 year, the government would support 20 added seats to increase the number of funded students from 20 to 40. The announcement also stated that the government would support the 24 BC students who were in the program but having to pay the international tuition cost (\$69,000). These two announcements were well received, although they said funding was only for one year. We can only hope for additional years.

The workplace changes required through the COVID pandemic caused huge stress to all of us trying to do our best to help animals in need. Our jobs are stressful enough, but arriving at work in the morning and not knowing how many staff are able to work each day was very difficult. Having to deal with upset clients is always difficult, and during these times, we realized how much we needed to rely on each other and how important each and every person at the clinic/hospital is in getting our work done. Thank goodness things have settled, but we have to continue to be diligent.

One of the best parts of the decreasing severity of the pandemic was the chance to start meeting in person. The most upbeat event that I attended in the last three years was the WCVM White Coat Ceremony. Those of you who went to WCVM in recent years know what this is. For those not familiar with it, the first year students file, province by province, behind a piper into a large dining hall with tables full of family, friends, and guests. Each student is introduced to those in attendance and given a white lab smock by the president of the CVMA, a stethoscope by the provincial veterinary associations, and, for BC students, a name badge from the SBCV. As each student crosses the stage, they are welcomed into the profession by a representative from their provincial veterinary association (and in BC also from the regulator). Meeting the new students and welcoming them is a very emotional moment, as we all know how difficult it is to be accepted into WCVM and how involved the journey is for the students embarking on it. It is great that we have 40 students eager to get going and contribute to our profession.

This White Coat Ceremony happened at lunchtime, and was followed by an awards banquet the same evening where much-needed financial awards were given to students in each year and also to graduate students. I had the privilege of giving the two SBCV \$2,500 scholarships that went to two deserving BC students.

While I was in Saskatoon, Dr. Megan Bergman (registrar of the CVBC) and I met with BC students from all classes. The SBCV also paid for a pizza dinner for the students, and I talked about what the SBCV was and how we could help them. Dr. Bergman talked about the CVBC, how it functions, and how the two organizations

work together. We introduced our new student liaison, Fiona Lamb, and gave a financial thank-you and canvas wall document thanking Madison Audeau for her service to the SBCV as our student liaison.

After these wonderful events, there was one more day of duties attending the annual WCVM Advisory Council meeting. This brings together the provincial veterinarian of each province, representatives of veterinary associations, and also the advanced education department representatives from the provinces (called the funders).

The meeting revolved around the annual report presented by the dean. The report has five different sections:

1. Specific areas of animal health, public health food safety, disease surveillance, and epidemiology in the commercial and wild animal sector
2. Research activities
3. Stipends, awards, and scholarships awarded to support the recruitment and retention of graduate students
4. Summaries of clinical and diagnostic service and consultation as well as continuing education for veterinarians and extension education for the public on veterinary issues
5. Summary on post-graduation employment status of graduates, including location

These reports are very enlightening as to how WCVM is progressing. The attendees of the meeting were then asked about different ideas of expanding the DVM program. One idea raised was partnering with another university to teach the first two years and then having students attend WCVM for the clinical years. Another idea was having the clinical year students sent to specialty hospitals. There was no consensus, but the notes from the meeting were to be compiled and sent to the participants.

The day ended with a thorough tour of the college, which brought back many wonderful memories of my time in Saskatoon even as I saw how things have changed over time. We need to see if our Ministry of Advanced Education and Skills Training would send a few of their staff to get a full tour of WCVM to see what they are funding and truly appreciate the incredible things our veterinary college is doing.

Thank you for supporting the SBCV. Your board has worked hard to keep up with the issues affecting us all. Our staff has had some changes; please thank them for the work they do to help us all. Your Board has some very devoted members who are working hard to expand what we are doing to help you, the public, and the animals of BC. Please continue to communicate with us, and if you have any ideas, let us know. [WCV](#)



Dr. Longair presents outgoing WCVM student liaison Madison Audeau with a token of our appreciation.

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Al Longair, BSc, DVM, graduated from the Western College of Veterinary Medicine in 1977. After graduation, he joined a mixed animal practice in Duncan, focusing on small animal practice from 1981 on. He has been involved with the BC SPCA for over 20 years, serving as the president of his local branch for 12 years and on the provincial management committee for 10 years, with four years as president. In the early 1990s, he served as chair of the CVMA Animal Welfare Committee. He lives on a small acreage with his wife, three horses, three dogs, and two cats and coaches youth soccer in his spare time.



As your CVMA president, it is my pleasure to update you on some of the CVMA's initiatives.

2023 CVMA AWARDS: NOMINATE A DESERVING COLLEAGUE

Nominations for the 2023 CVMA awards are accepted until January 31, 2023. Award recipients receive complimentary registration to the 2023 CVMA Convention in Quebec City. Award nominees (excluding those nominated for honorary membership) must be current CVMA members; however, they can be nominated by non-members. Find more information under the "CVMA Awards" page of the "About CVMA" section of our website for more information.

EXPANDING VETERINARY CAPACITY IN CANADA

Responding to the results of the 2020 Workforce Study, the CVMA hosted a two-day Veterinary Workforce Congress in June 2022. Congress attendance was by invitation with representation from more than 50 stakeholders from the veterinary profession, clinical practice, industry, and government from across Canada. The congress developed a set of emerging priority pathways that identified the CVMA's role in addressing veterinary workforce issues at a national level and also identified the roles of other stakeholders. The congress initiated broad stakeholder collaboration and provided the beginning of a dynamic pathway of continued collaboration on a national level. See the "Veterinary Workforce Shortage" page of our website for more information.

THE CVMA SUPPORTS CFIA'S DECISION TO PROHIBIT ENTRY OF COMMERCIAL DOGS FROM COUNTRIES AT HIGH RISK FOR DOG RABIES

The CFIA announced, effective September 28, 2022, World Rabies Day, that commercial dogs from countries at high risk for dog rabies (rabies caused by canine-variant viruses) will no longer be permitted entry into Canada. Commercial dogs can include, but are not limited to, dogs for resale, adoption, fostering, breeding, show or exhibition, research, and other purposes. The CVMA supports this decision in the interest of protecting animal and human health by preventing the introduction and spread of rabies into Canada. Visit the "Latest News" section of our website under "About CVMA" for more information.

LEARN HOW TO USE TOGETHERALL, THE CVMA'S ONLINE PEER-TO-PEER MENTAL HEALTH RESOURCE

Togetherall is an online peer-to-peer community supported by integrated services and safety nets offering the opportunity to improve mental wellness by receiving and providing support—including anonymous interactions and supervision by licensed mental health practitioners—that empowers members to openly share their innermost thoughts and feelings in an inclusive environment. Watch the Togetherall introductory webinar under "Veterinary Health and Wellness Resources" in the "Veterinary Resources" section of [canadianveterinarians.net](#) to learn more.

NEW CVMA EXECUTIVE

The CVMA is pleased to present its 2022–2023 executive members:

- Dr. Chris Bell, President
- Dr. Trevor Lawson, President-Elect
- Dr. Timothy Arthur, Vice President
- Dr. Tracy Fisher, Executive Member
- Dr. Louis Kwantes, Immediate Past President
- Dr. Brian Evans, Treasurer [WCV](#)



Chris Bell, BSc, MSc, DVM, grew up on a family horse farm in Airdrie, Alberta. He obtained a BSc with high honours in Microbiology and Immunology from the University of Saskatchewan and a DVM with distinction from WCVM, then completed a one-year clinical internship at the Arizona Equine Medical and Surgical Center and a three-year surgical residency program at WCVM, where he completed an MSc in Upper Airway Surgery. He is a board-certified equine surgeon and diplomate of the American College of Veterinary Surgeons (DACVS). Dr. Bell is an adjunct professor of equine surgery and sports medicine with WCVM. Dr. Bell serves his colleagues through multiple commitments to the CVMA and the Manitoba Veterinary Medical Association (MVMA). He was recognized in 2019 with the MVMA Award of Merit. Dr. Bell is a member of the CVMA Canadian Veterinary Reserve, chairs the CVMA Emerging Leaders Program and the MVMA Student and Early Career Engagement Committee, and is a member of the WCVM Educational Advisory Committee. When he is not at work, Dr. Bell enjoys spending time with his wife and two daughters at their cabin or fishing at the lake.

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TWO PERSPECTIVES FROM THE EMERGING LEADERS PROGRAM

CORRINE SEARLE, DVM

I am a small animal general practitioner with 19 years of locum work and two years of practice ownership in the lower mainland of British Columbia. I recently attended the leadership workshop in Halifax at the CVMA convention as a part of the Emerging Leaders Program. I spent many years doing small animal locum work taking the attitude of “not my hospital; not my problem” and not stepping up as a leader. With the transition to practice ownership, my goals shifted toward learning more about effective leadership. A leader can have a tremendous influence on the culture of the veterinary workplace—either positively or negatively. My goal as a practice owner and leader is to create a fulfilling environment for everyone to work in and thrive.

There were many great thought-provoking ideas that came out of the leadership workshop, where we discussed what good leadership is and more importantly, what it isn't. Leadership is **not** perfection, and it is **not** having all the answers. Good leadership is staying curious, asking questions, and being non-judgmental. Leadership is striving to coach those around us to find the answers for themselves. Leadership is not easy but is a worthy goal to strive for. It is a work in progress, and I feel grateful for the opportunity to do it. [WCV](#)

MELISSA STEPHENS, BSc, DVM

Like so many of us, I knew as I was growing up that I wanted to be a veterinarian. Originally from Surrey, I returned to the lower mainland upon graduating from WCV in 2016 to pursue small animal general practice. I wanted to see young animals start out growing with their families, thrive through adulthood, and gracefully enter their golden years. For the last five years, I have been privileged to call Scottsdale Veterinary Hospital in Surrey, BC, home.

While veterinary school laid a solid foundation for the daily grind of surgeries and medicine in general practice, it left me feeling less equipped to handle many other facets of our profession including business management, staff interrelations, and difficult financial discussions with clients. I also felt ill-prepared on a more personal level for the imposter syndrome, compassion fatigue, and burnout that plague so many of us. While I have sought continuing education in many of these areas, there are many days even six years after graduation when I still feel lacking.

I first heard about the Emerging Leaders Program from a classmate who had attended the workshop the previous year. She described it as a crash course on personal and professional leadership in the veterinary profession. As somebody who aspires to someday be a clinic owner, I was very intrigued from a business standpoint. I was also interested on a more personal level in learning more about client relations, staff relations, and our own daily journeys as veterinarians. I decided to apply the following year, and was lucky enough to be chosen to attend the program in Halifax in July 2022.

Arriving at the Emerging Leaders Program, I had a general idea of what to expect, but the session far exceeded any expectations I'd held. The workshop's presenter, Rob Marr, kept us entertained and engaged while we discussed leadership, business management, and mental health in our industry. He started by asking us all what we thought it meant to be an “emerging leader.” As we all called out traits, tactics, and requirements that we thought it took to be a leader, we noticed the list becoming longer and longer. By the end of this quick exercise, the list was daunting. How could any one person be all of these things? The answer was quite simple: nobody can be. No perfect leader exists, though we all strive in vain to achieve this. The best you can do is be willing to listen, learn, and make mistakes. Suddenly, being a leader didn't seem as unattainable.

The workshop was full of insight on maintaining a positive clinic atmosphere, inspiring respect in those around you, and navigating difficult discussions with staff and clients alike. While all of these were immeasurably helpful, the most beneficial aspect of the workshop was the opportunity to network with colleagues from across Canada and connect with them on a personal level in an environment that felt controlled and safe.

After the Emerging Leaders Program, I felt inspired and rejuvenated, and returned to work with a fresh mindset. I was able to share and put into practice some of the strategies I'd learned that I believe will lay the foundation for sustainable, positive change in daily clinical practice. Most importantly, I feel less defeated when faced with barriers and challenges; I finally understand that leadership is a constant work in progress. The best we can do is be willing to listen, learn, and make mistakes. [WCV](#)

VETERINARY STUDENTS SHIFT TOWARD AN IN-PERSON SCHOOL YEAR

BY FIONA LAMB, BSc

After more than two years of navigating different variations of remote learning and postponed events, WCVM students from the classes of 2024 and 2025 returned in August to attend their White Coat Ceremony. Incoming second- and third-years lined the front of the banquet hall in anticipation of receiving their official welcome into the veterinary profession. “It was amazing to see the generous support from the family of each student in attendance,” said Debby Peng (class of 2025, Prince George). With the many congratulations exchanged among the family and friends gathered, a transition to a more in-person school year seemed to be underway.

The start of the school year at WCVM was also noticeably different with the reversal to pre-pandemic traditions—although for most upper-year students, this was likewise a novel experience. Last year, WCVM students attended their very first two weeks of veterinary school behind flickering screens, flitting from one Zoom meeting to the next. With this online format, there were fewer opportunities to connect with our peers, and many found it difficult to bridge this disconnect. As a first-year student, I remember meeting most of my classmates for the first time in September after two weeks of online learning. Although I had had some brief interactions with other students in breakout groups on Zoom, the relationship-building capacity of in-person learning became strikingly obvious in the subsequent months as we navigated a variety of labs together. For the class of 2024, who completed all of their first year online, September 2021 was also their first experience of classroom-based learning. This year, the class of 2026 was welcomed into the college with a pancake breakfast and a meeting with their second-year buddies during orientation. With the many introductions, reunions, and words of advice, there was a sense of community being fostered. “There’s something about everyone coming together after a time apart that strengthens relationships,” said Leila Weinerman (class of 2025, Victoria).

As regular in-person classes started, the opportunity for interactive learning and socialization became a key factor for improved well-being among veterinary students. “Being at school to physically see my professors and classmates has had a positive emotional and mental effect,” said Eden Rowe (class of 2025, Nanaimo). Learning online was a challenge for many students who found self-motivation difficult, and the sense of isolation is common. For myself, it was particularly daunting to navigate the inability to focus after extended periods in front of the screen. For others, this in-person transition has also provided some reassurance in managing the upcoming year. Viviana Lee from Vancouver (class of 2025) said, “I had never experienced online learning prior to last year when we had a couple of weeks of online lectures. I strongly prefer in-person teaching as I find the instructor can better gauge the attitude of the class because they can see the students. The lecture then becomes more interactive, and I have an easier time paying attention.” However, with the return to a classroom setting, readaptation of previous online learning strategies can also be a challenge. “Learning techniques of the past cannot always be applied,” said Leila Weinerman. With the different forms of lecture delivery, many have likewise adjusted their note-taking strategies to adapt to this change. If there is one commonality throughout the last couple of years at WCVM, it is that students have learned to pivot when faced with adversity or change.

For example, veterinary students rallied together this year to prepare for Vetavision—a student-led open house—which was previously postponed with the uncertainty of ever-changing pandemic guidelines. The in-person event in September spanned a two-day period where WCVM student volunteers participated to showcase the diversity of the veterinary profession to the public. Over 30 booths on topics ranging from poultry to anatomy were scattered around the school with many demonstrations scheduled throughout the day (e.g., fistulated cow, equine treadmill, bovine hoof trimming). On the second day of Vetavision, there was also



PHOTO COURTESY FIONA LAMB

Veterinary students (Fiona Lamb, class of 2025, Coquitlam, and Colin Schultz, class of 2025, Canyon Home) volunteering at the poultry booth at Vetavision.

“THE RELATIONSHIP-BUILDING CAPACITY OF IN-PERSON LEARNING BECAME STRIKINGLY OBVIOUS IN THE SUBSEQUENT MONTHS AS WE NAVIGATED A VARIETY OF LABS TOGETHER.”



PHOTO PROVIDED BY SBCV

Veterinary students at WCVM meet with Dr. Al Longair, SBCV, and Dr. Megan Bergman, CVBC.

a panel of WCVM students sharing their experience and advice to prospective veterinary students attending the Pre-Vet Night event. Similarly, with further changes to in-person events, there was a night of open discussion among WCVM students from British Columbia at the meeting with the Society of BC Veterinarians and the College of Veterinarians of BC. With the frequent changes occurring within the college, many new opportunities have surfaced, and WCVM students are at the forefront of embracing these new experiences. **WCV**



Fiona Lamb, BSc, WCVM class of 2025, is from Coquitlam, BC. Before coming to WCVM, she earned her BSc in Biology at the University of British Columbia and completed her thesis, which focused on human-animal relationships of companion animals. After graduation, she looks forward to exploring her interests in public health, small animal medicine, and poultry medicine.

COMPUTERS AS PART OF THE ANIMAL CARE TEAM IN SHELTERS

BY BAILEY H. EAGAN, MSc, BEN EAGAN, BSc, MSc, AND ALEXANDRA PROTOPOPOVA, PhD, CAAB

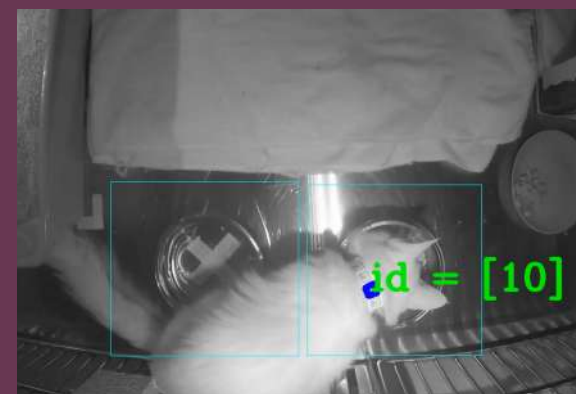
In animal shelters, easily monitoring individual animal behaviour is often challenging as time and financial resources can be limited. Further, the population and needs of animals within shelters are frequently changing. Behaviour monitoring is usually limited to brief in-person assessments and daily cage inspections. As a result, detailed and consistent behavioural information for detecting early signs that a cat is not coping well in the shelter may be missed.

Technology is increasingly incorporated into the world to help humans solve problems. Computer vision, a term coined to refer to a computer's ability to obtain meaningful data from visual inputs, is used daily for many essential tasks worldwide, from medical imaging data to self-driving cars, and even when we unlock our phones with facial recognition. Recent research has shown that animal shelters may benefit too.

Our research team at the University of British Columbia's Animal Welfare Program created a computer vision monitoring system, BeRSTID (Behaviour Real-Time Spatial Tracking Identification), an open-source and free software system. BeRSTID simply requires a camera, a computer, and some printed black-and-white identifiers. The solution tracks the identifiers throughout the camera frames to infer behaviours based on location. In our case, we conducted a study that used a low-powered Raspberry Pi 3 computer connected to Wi-Fi, a USB webcam (available for under \$50), and a veterinary paper ID collar with a unique marker visible (or barcode). Six cats housed at the BC SPCA wearing unique ID collars were video monitored in the animal shelter for several days. A human observer then reviewed videos to record animal behaviour and then ran the videos through the BeRSTID system to compare the human observations to the computer vision output to test the computer vision system's validity.



The BeRSTID system reads collar tags to identify each cat in a given space.



The BeRSTID system detects a collar tag within the area of a water resource, logging a drinking event.

“THE SOLUTION TRACKS THE IDENTIFIERS THROUGHOUT THE CAMERA FRAMES TO INFER BEHAVIOURS BASED ON LOCATION.”

Results showed that BeRSTID's output correlated with high accuracy to human accounts of cat eating and drinking behaviour, indicating that computer vision can assist in cat behaviour monitoring in a shelter. BeRSTID was particularly useful when recording the behaviour of cats that were group housed and for identifying cats who were not eating or drinking and therefore required further staff intervention. The BeRSTID system also provided real-time updates on cat behaviour 24 hours a day, so researchers and the animal care team could log in to the online platform and immediately see which cats were eating and drinking, even when there were no staff in the shelter to observe them. The BeRSTID system has since been applied to monitor cat behaviour for a large-scale clinical trial and has provided valuable insights into animal behaviour by automated means.

While our validation study showed that computer vision could help automatically provide information about animal behaviour, further refinements to the BeRSTID system will be beneficial before widespread use. Our research team aims for this free, open-source, and accessible system to be used, further developed, and validated in other settings (such as a veterinary hospital) and for varied species and behaviours. As the BeRSTID system and related technologies develop, we hope that computers can be incorporated into the animal care team to help hardworking staff care for animals using the best information available.

This research has been reported in B. H. Eagan, B. Eagan, and A. Protopopova. "Behaviour Real-Time Spatial Tracking Identification (BeRSTID) Used for Cat Behaviour Monitoring in an Animal Shelter." *Scientific Reports* 12, 17585 (2022). m. [WCV](#)

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SOCIAL WORKERS IN VETERINARY MEDICINE

BY NATALIE CRUZ, MSW, RSW

Social workers are employed in hospitals, correctional facilities, school boards, social services agencies, child welfare organizations, community agencies, employee assistance programs, and so much more, so why not veterinary medicine? You might not expect them to go hand in hand, but there is experience and anecdotal evidence that supports social workers as valuable to veterinary teams and their clients. In the veterinary field, social workers can provide valuable support to improve the mental health of veterinary staff and their clients. Veterinarian research has shown that there is a high rate of veterinarians facing burnout and mental health concerns such as suicidal ideation. In a time when veterinarians are suffering in silence, there should be a higher emphasis on their mental well-being. Social workers are trained mental health professionals, and having them involved in veterinary medicine can help with burnout and mental health concerns.

Social workers attend school for four years to complete their Bachelor of Social Work. Then they can continue to complete a Master of Social Work or PhD, offered at many Canadian universities. The field of veterinary social work was pioneered in the United States, and there are many workers in various states. The University of Tennessee has a postgraduate certificate program on veterinary social work that is available online.

Social workers work with clients, individually, with families and groups and in the community. There are a lot of similarities between social workers who work in human medicine and those who work in veterinary medicine. In human medicine, social workers work closely with doctors to provide emotional support and resources to patients and their families members. Social workers are part of discussions about difficult diagnoses, end-of-life discussions, and resource management. The goal in having a social worker on staff is for the doctor to be able to provide the medical update and the social worker to support the family and to hold space to process the news that they have been told. Social workers can also be part of the critical incident stress management team that assists employees with difficult situations.

Services provided by veterinary social workers vary, depending on the hospital. Veterinary social workers provide emotional support to pet owners and are available to have longer discussions about difficult topics such as a pet's quality of life, financial concerns, end of life, difficult diagnosis, the pet owner's own life struggles and how their pet's medical condition is bringing more stress or anxiety on top of other life stressors. Care decisions can be difficult for the pet owner, who is under stress. The social worker can take time to assist them in discussing their life stressors and explore different options that consider their own well-being. Veterinary social workers can help with communication between pet owners and the veterinary team to make sure the pet owners' concerns and questions are being answered. Veterinary social workers attend crises that come through the hospital, such as traumas or code blues to provide crisis intervention and emotional support to the family so that the veterinary staff can focus on the pet's well-being. The goal of having social workers involved is that pet owners are not left alone in moments of panic and trauma. Support can look different for each pet owner; however, it could be the social worker liaising with the veterinary team or holding space for the pet owner to be able to share their emotions and worries. Animal violence is also a concern that no one wants to see but unfortunately happens. Knowing that there is a link between animal violence and domestic violence, the social worker has time to assess the pet owner's situation and intervene if needed or point the pet owner to domestic violence resources.

Veterinary professionals face many challenges throughout their day. Their work is stressful because they are working with sick animals constantly and dealing with unpredictable emergencies, like pets who have been hit by a car or attacked by another animal, have eaten something poisonous, or suddenly collapsed. On top of that, veterinarians face long working days, staff shortages, possibly high student loan debts, difficulty balancing work and life, and so much more. They then face the strain of empathizing with pet owners, because veterinarians, too, are animal lovers and understand the importance of the human-animal bond.

The human-animal bond brings a sense of positive social interaction and unconditional love that we lack at times in human-to-human interaction. Pets are so much more than "just animals." To pet owners, they become family or a friend or a companion. At times a pet is a person's last connection to a deceased family member. Other times a pet is a person's service or therapy animal. Unfortunately, it can be difficult for a veterinarian to spend as much time with the owner as they would wish, as they are constantly busy caring for other patients at the clinic. By having a social worker present, the veterinary staff can focus on the animal while the social worker provides support to the owner.

Veterinary social workers can also provide debriefings to staff members after a difficult work event, either in a group setting or individually. If a staff member is facing a crisis, the social worker can provide crisis intervention and refer to community counselling or other resources. A veterinary social worker can also provide educational sessions on effective client communication, burnout, stress management, leadership, compassion fatigue, and other topics.

I honestly did not know veterinary social work existed before I applied to Boundary Bay Veterinary Hospital. When I applied for the posting I started to do my own research on veterinary social workers and saw that there was a big need for this role. Of course, it helps that I love animals. My relationship with my Husky cross, Timber, and Lionhead rabbit, Gertrude, helps me understand the bond we create with our own pets. When the opportunity to be a veterinary social worker presented itself, I had to jump on it. I felt as if the skills (such

“SOCIAL WORKERS ARE PART OF DISCUSSIONS ABOUT DIFFICULT DIAGNOSES, END-OF-LIFE DISCUSSIONS, AND RESOURCE MANAGEMENT.”

as crisis intervention, grief and loss support, difficult diagnosis conversations, end-of-life discussions, safety assessments, and psychoeducation) I have developed throughout my career could be transferred to this line of work.

At a local level, I hope that I can help support the staff in working with pet owners. The hospital is a fast-paced place, and veterinary staff are constantly working and saving sick patients. By having a social worker present they can feel that they are not leaving the pet owners alone without emotional support. Additionally, I can support the staff by creating a space where they can come speak to me and discuss any difficulties they are having working in a high-stress level environment or about other life stressors. The hope is that nobody feels as if they are alone.

On a broader level, I hope that veterinary social work grows across Canada, starting with veterinary programs or veterinary technician programs and across different veterinary hospitals and practices. I know that when people first hear about veterinary social workers, they do not understand, but once I explain what I do and why it is so important, people are shocked. People do not realize how much stress veterinary medicine professionals face daily, and any high-stress job will affect mental health. I hope this article brings to light the importance of veterinary schools and practices focusing on staff mental well-being and how social work can help that. There are few veterinary social workers in Canada, and my hope is to see their numbers grow across all provinces.

The Canadian veterinary community has an opportunity to follow the example of their US friends in placing a priority on including mental health professionals such as social workers in their practices and educational system. Work situations can look different depending on the individual, but there are practices where the veterinary social worker is hired on a contract basis to provide counselling and mental health support to the veterinary team. Or providing social work support can be as simple as providing crisis line phone numbers, contact information for online pet loss support groups, and other information about crisis support at the veterinary practice. Staff and clients will feel more validated, heard, and understood when they know that the practice they work for or bring their pets to understands the importance of mental health and is willing to help people find resources. [WCV](#)



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

ADOLESCENCE AND YOUNG ADULTHOOD— THE LOST YEARS

BY MARGIE SCHERK, DVM, DABVP

The health needs of young adult cats, (between one and six years of age), are frequently neglected. Because these cats are healthy—or appear to be so—it is more difficult for cat parents to believe that best care includes preventive care visits. It is not inconceivable that, as with humans, a healthy lifestyle during early life plays an important role in cats' health when they are older. Wellness care extends beyond strictly focusing on the physical aspects of health. While it includes an annual comprehensive examination, boosting all immunizations administered during the foundational series, and controlling external and internal parasites, we have the opportunity to build on education started during the first year of life.

Of great concern during this period are lower urinary tract problems; bronchial disease/asthma; chronic enteropathies, including inflammatory bowel disease; dental disease; behavioural problems; and obesity. It is important that we have the opportunity, through examination, to detect and treat these conditions, but we may also have a chance to prevent them from developing. This is most obvious when we think of conditions with an obvious nutritional component, such as obesity or urolithiasis, but what and how we feed cats plays a role in all of the aforementioned conditions.

In humans, many individuals with lower urinary tract signs (LUTS)—stranguria, pollakiuria, hematuria, urgency—suffer from interstitial cystitis/bladder pain syndrome (see Figures 1 and 2). Affected people frequently suffer from comorbidities such as irritable bowel syndrome, fibromyalgia, or chronic fatigue syndrome. It has become apparent that interstitial cystitis is a chronic disease that involves crosstalk between the immune system and the nervous system, with the urinary tract being the victim of a systemic process associated with a sensitized central stress response system. The same appears to be the case in cats with idiopathic cystitis, the most common cause of LUTS in cats under 10 years of age. Cats with idiopathic cystitis frequently have comorbidities that are expressed (or hidden) to varying degrees. This highlights the need for a comprehensive evaluation of the entire patient *and* the environment in which the cat is living.

"Pandora syndrome" is a term coined by Dr. Tony Buffington and colleagues to describe the constellation of physical and environmental conditions that may result a state of stress and dis-ease. The criteria he has proposed include the following:



FIGURE 3: Body condition scoring chart.

1. Presence of clinical signs referable to other organ systems in addition to chronic idiopathic signs for which the patient is being evaluated
2. Evidence of an early-life adverse experience (e.g., abandonment, orphaning) which may differ by individual
3. Waxing and waning of severity of clinical signs with events that (presumably) activate the central stress response system
4. Resolution of signs with effective multimodal environmental modification

It would require a large, long-term, controlled, prospective study to determine whether meeting environmental, nutritional, and physical needs might result in a lower risk for idiopathic cystitis, IBD, asthma, obesity, etc., making it very difficult to evaluate scientifically. The number of variables to control is too great. Nevertheless, it is conceivable that focusing on improving psychological, emotional, environmental, and nutritional wellness in this life stage will have a positive impact on the welfare of cats long term.

It is hard to overemphasize the importance of a cat's environment in allowing and encouraging them to express a wide range of normal feline behaviours. Species-typical behaviours include play, investigation, observation, hunting, feeding, drinking, grooming, scratching, travelling, scent marking, eliminating, resting, and sleeping. For a comprehensive discussion on natural cat behaviours, see the previous article in *West Coast Veterinarian* on meeting the needs of indoor cats (issue 40, September 2020, www.canadianveterinarians.net/media/ci2nf3nq/west-coast-veterinarian-fall-2020.pdf) as well as the AAFP/ISFM Environmental Needs Guidelines (catvets.com/guidelines/practice-guidelines/environmental-needs-guidelines).

So what can we do to help shepherd adolescent cats through a healthier life? Questions to ask regularly include:

- How often does your cat:*
- Vomit food or hairballs?
 - Have diarrhea or constipation?
 - Urinate or defecate anywhere other than in the litter box?
- Please describe.*

By using open-ended questions (rather than: "Any vomiting or diarrhea?"), you will get answers that lead to concerns that the client didn't know they had. In a similar manner, inquire about grooming habits; changes in the cat's behaviour and interactions

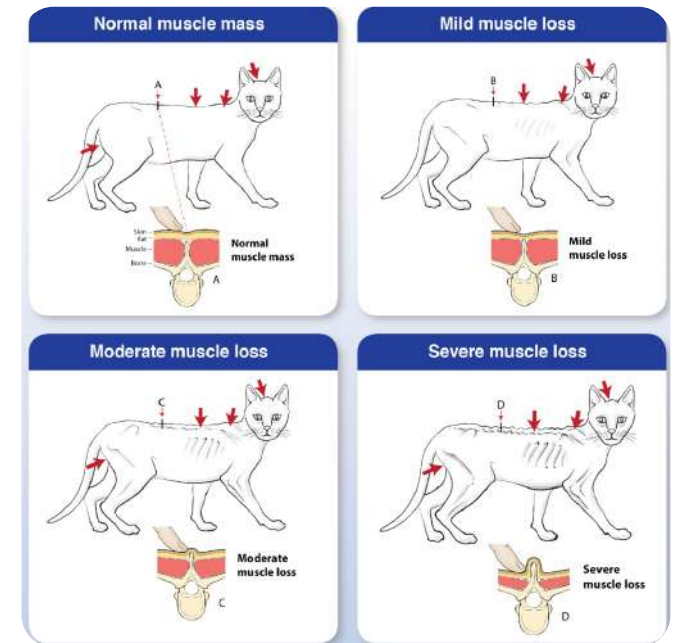


FIGURE 4: Muscle condition scoring chart.

with others; what, how much, where, when, from what, and how they eat and drink. Asking "Is there anything else you have noticed?" before starting the hands-on examination often brings pertinent information to light.

After taking the history, blood pressure (BP) should be measured before doing anything else. Assessing BPs as part of every exam and rewarding the cat with treats every time helps to normalize the procedure for the patient and improve the validity of this value when BP measurement is critical. (This also helps the veterinary team become efficient at this technique.)

The nutritional assessment includes determining body weight and any change from previous weight. Because cats in this age group are at risk of becoming obese, tracking weight trends is extremely helpful. Keep in mind that small changes can reflect a bigger problem. You can calculate the percentage weight change by taking the difference between the current and previous weight, dividing it by the previous weight, and multiplying by 100. A body condition score as well as a muscle condition score can easily be determined using the charts in Figures 3 and 4.



FIGURE 1: A cat displaying signs of dysuria.



FIGURE 2: Cats with lower urinary tract signs may overgroom their perineal area.

PHOTO COURTESY SARAH CANEY

PHOTO COURTESY MARGIE SCHERK

“THE PHYSICAL EXAM SHOULD PAY PARTICULAR ATTENTION TO ORAL HEALTH, LOOKING FOR GINGIVITIS, PERIODONTAL DISEASE, STOMATITIS, RESORPTIVE LESIONS, AND ORAL MASSES.”



FIGURE 5: Small airway disease is often mistaken for a “hairball cough.”

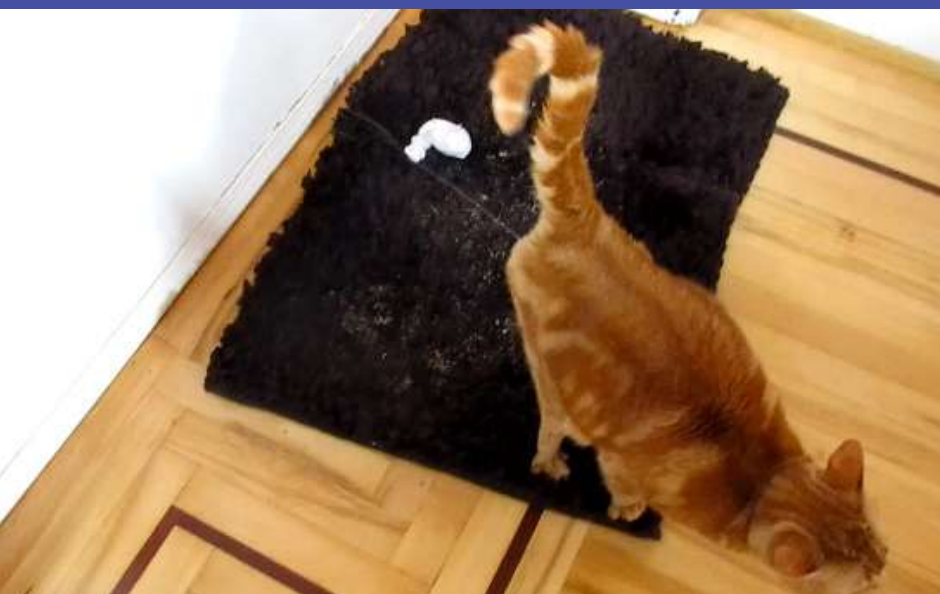


FIGURE 6: Nimitz spraying.

PHOTOS COURTESY MARGIE SCHERK

Determining what and how the cat is being fed provides the chance to correct quantities and make sure enrichment and play behaviours are being incorporated.

The physical exam should pay particular attention to oral health, looking for gingivitis, periodontal disease, stomatitis, resorptive lesions, and oral masses. When any of the first three are identified, along with providing appropriate dental care (cleaning, X-rays), retroviral status should be re-checked.

Watching the cat breathe and inquiring about coughing or wheezing will supplement thoracic auscultation. Young adult cats are at greatest risk for developing small airway disease, frequently mistaken for “hairball cough” (Figure 5, see the supplementary materials for this issue at www.canadianveterinarians.net/sbcv/west-coast-veterinarian-magazine for a video of a cat with asthma). While a client may intend to bring their cat in during an episode of vomiting or diarrhea, because chronic enteropathies/IBD wax and wane, the problem may resolve before they come in. This makes the history very helpful in addition to videos taken by the client during an episode.

When a non-obstructed cat presents with stranguria and pollakiuria, it can be difficult to collect a urine sample. In addition to making sure that the cat is comfortable (consider using antispasmodics), asking the client to check for hematuria at home can be very helpful. Of course, a complete urinalysis by cystocentesis is still required to identify the underlying problem, so by having the client prepay for the urinalysis, they are more likely to bring the cat back once they are comfortable. If struvite crystals are found in alkaline urine along with hematuria, one cannot assume that urolithiasis is the cause of the LUTS. In the majority of cats under 10 years of age, LUTS is caused by idiopathic cystitis. While feeding a diet designed to create a dilute urine of neutral pH is appropriate, management of this condition requires a broader approach, namely addressing the cat’s environment and stress. When calcium oxalate urolithiasis is identified, diet, hydration, and ensuring pleasant and accessible litter boxes should be addressed.

Should bacteria and white blood cells be seen in urine sediment in a cat with LUTS, a culture and sensitivity should be performed before prescribing antibiotics, as urinary tract infections are uncommon in this age group. If white blood cells and bacteria are seen, but the cat does not have signs of LUT problems, (i.e., subclinical bacteriuria), a culture and sensitivity is not warranted. Antimicrobials are not routinely needed even when a urine sample has not been available.

In addition to helping identify LUTS when only a tiny bladder is present and in confirming that blood seen in a cystocentesis collected sample is more than iatrogenic, monitoring hematuria at home (e.g., by using hematuria granules) can help identify recurrent urolithiasis and can provide information about how well environmental management is working in cats with idiopathic cystitis.

For a long and harmonious coexistence, preventing behaviour problems and problem behaviours is important. Inappropriate elimination is the top behavioural reason people relinquish their cats to shelters, hence where a cat urinates is critical for their survival. The 2014 AAFCO and ISFM Guidelines for Diagnosing and Solving House-soiling Behavior in Cats (catvets.com/guidelines/practice-guidelines/house-soiling) emphasizes that the most important question to ask your clients is: “Has your cat urinated or defecated somewhere in the house other than in the litter box?” (see Figure 6). By identifying any break from “acceptable” elimination early, the problem has a far greater chance of being cured, and the bond between human and cat can be maintained.

Through creating a culture of preventive care during adolescence and young adulthood, veterinary teams have the chance to reduce morbidity and mortality in later years.

RECOMMENDED READING

- AAFCO consensus statement “How to Feed a Cat”: <https://catvets.com/guidelines/practice-guidelines/how-to-feed>
- Website dedicated to teach how to use and choose feeding puzzles: <http://foodpuzzlesforcats.com>
- Client brochure on how to feed a cat: <https://catfriendly.com/be-a-cat-friendly-caregiver/how-to-feed-a-cat>
- AAFCO/ISFM environmental needs guidelines: <https://catvets.com/guidelines/practice-guidelines/environmental-needs-guidelines>
- AAFCO and ISFM guidelines for diagnosing and solving house-soiling behaviour in cats: <https://catvets.com/guidelines/practice-guidelines/house-soiling>
- Blücare granules for detecting hematuria: <https://blucarelab.com>

To save space, the references for this article are made available on the Chapter’s website at www.canadianveterinarians.net/sbcv/west-coast-veterinarian-magazine. WCV

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HOSPITAL UPDATES

We are excited to share that VCA Canada Central Victoria Veterinary Hospital is expanding its departments by bringing on four new team members. Our first new addition, Dr. Jessica Burn, is pleased to offer patients diagnostics and treatment for eye and eyelid disorders. Other new key team members include Dr. Laura Barnard, who has joined our neurology service, and Dr. Lynn Griffin, the second radiologist in our diagnostic imaging department. Finally, we welcome Dr. Bernard Séguin, surgical oncologist, to our oncology team.

NEUROLOGY



Dr. Laura Barnard
DVM, DACVIM (Neurology)

OPHTHALMOLOGY



Dr. Jessica Burn
DVM, MS
Practice Limited to Diseases of the (Animal) Eye

RADIOLOGY



Dr. Lynn Griffin
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SURGICAL ONCOLOGY



Dr. Bernard Séguin
DVM, MS, DACVS, ACVS
Founding Fellow - Surgical Oncology ACVS
Founding Fellow - Oral and Maxillofacial Surgery



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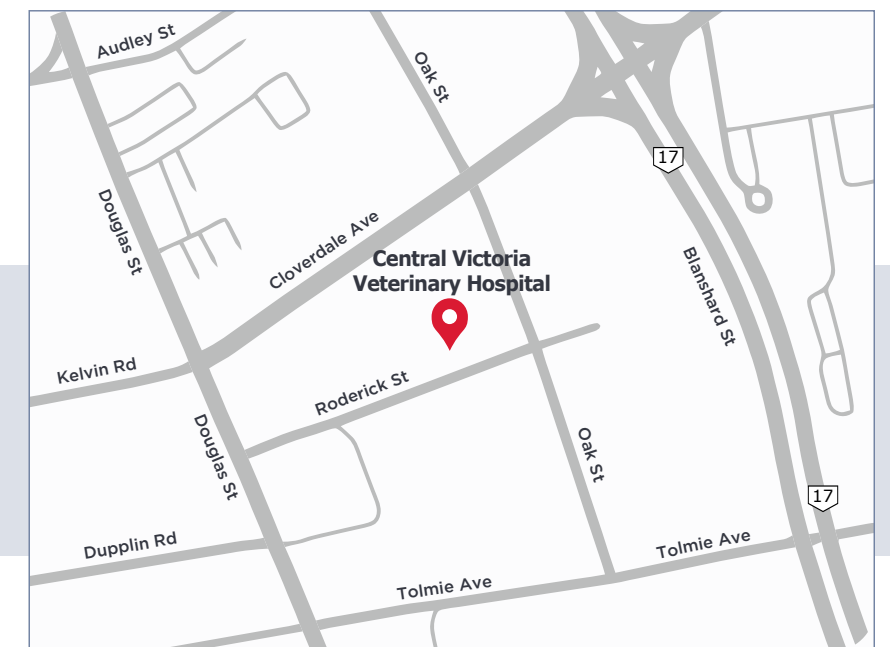




PHOTO BY VELIZAR WANG/UNSPLASH.COM

Telemedicine has been a burgeoning field in the veterinary profession since the World Health Organization declared COVID-19 a global pandemic on March 11, 2020. Although veterinary telemedicine has been informally practiced for decades before the pandemic, it has never been so important and so prevalent as it is now. The combination of practising curbside medicine, which decreased clinic efficiencies, and the pet adoption boom during the pandemic has resulted in an acute exacerbation of the pre-existing shortage of veterinarians. The adoption of telemedicine became a way to facilitate physical distancing, protect public health, and enable more patients to access the veterinary care they so desperately required. Although physical distancing is no longer mandated, the increased number of pets in Canada as a result of the pandemic persists, perpetuating the access to care issues that pet owners have been facing.

Telemedicine in the veterinary space is convenient and accessible, but it comes with its own unique set of medical, logistical, and regulatory challenges. There is a plethora of differing opinions among stakeholders, ever-changing standards across regulatory bodies in Canada and the United States, and uncertainty among individual veterinary professionals about how, when, and whether they may practice telemedicine in their respective jurisdictions. How do regulators define telemedicine? Should veterinarians be permitted to prescribe via telemedicine? What happens if patients' issues cannot be addressed virtually? And in an age when so many pet owners are unable to access hands-on veterinary care, how should follow-up medical needs be addressed in the instance of treatment failures or adverse reactions to prescribed treatments? Most importantly, as a profession that likes to rely upon evidence-based medicine to develop protocols and standards, how do we move forward into the modern realm of virtual health with very little veterinary-specific data about clinical outcomes to help with the development of regulatory guidelines?

Telemedicine is defined as the provision of specific veterinary medical advice, diagnoses, and treatments to patients based on virtual assessments conducted through telecommunications technology where no in-person physical examinations or in-person premise visits by veterinarians occur. Telerriage is the practice of determining the urgency with which pets need to be seen for hands-on veterinary care, and it is generally defined as advice dispensed by an individual who is not licensed to practise veterinary medicine, but who provides recommendations under the supervision of a licensed veterinarian. Ultimately, whether telerriage is considered practising veterinary medicine or not depends on where a veterinarian is licensed to practise.

One of many challenges that telemedicine presents for regulators is the paucity of data that is available in the veterinary field with respect to the clinical outcomes of telemedicine consultations. Aside from the lack of studies in existence at this time, much of the data that is currently available is based on survey results that have gathered opinions, rather than facts, statistics, and definitive outcomes. In addition to growing a larger body of evidence to aid in the development of guidelines, it would be of value for regulators to be able to delineate between data for telemedicine outcomes achieved within pre-existing physically established veterinarian-client-patient relationships (VCPRs) versus

TELEMEDICINE: BRIDGING THE GAP

BY KOHARIK ARMAN, BSc, DVM

“HOW DO WE MOVE FORWARD INTO THE MODERN REALM OF VIRTUAL HEALTH WITH VERY LITTLE VETERINARY-SPECIFIC DATA ABOUT CLINICAL OUTCOMES...”

those associated with telemedicine-established VCPRs. The latter category would include data from telemedicine practiced from within traditional clinical practice with new clientele and telemedicine practiced via third-party platform providers such as Vetster, Chewy, TELUS Health MyPet, Smart.Vet, and other companies that have brought veterinary telemedicine into their service offerings.

Those who are not proponents of veterinary telemedicine have concerns about telemedicine competing with brick-and-mortar clinics for clientele, failing to comply with standards for antimicrobial stewardship, harming the traditional development of the VCPR, providing misdiagnoses, and causing owners to delay hands-on veterinary care when it's urgently required.

It is still early in the process with respect to data collection, but telemedicine stakeholders in the veterinary profession look to the currently available data that quantifies outcomes in the field. Some relatively large-scale surveys were conducted during the pandemic to measure client satisfaction with veterinary telemedicine services. The global animal health association HealthforAnimals conducted a survey of 3,258 pet owners across Brazil, the United States, the UK, and France, with an even split between cat owners and dog owners. The results of the survey revealed that 75 per cent of pet owners were satisfied or extremely satisfied with the telemedicine services they received from veterinarians whom they consulted virtually. Additionally, 49 per cent of pet owners reported that their telemedicine appointments also led to in-person appointments. The implication is that telemedicine veterinarians advise owners to seek hands-on care when indicated, and that virtual consults do not prevent owners from following up at physical practices when appropriate.

In Canada, the 2020 and 2021 Ontario Veterinary Medical Association Pet Owner Survey showed that 75 per cent of telemedicine appointments resulted in full resolution of the presenting issue, and only 25 per cent of pets needed to be seen for an in-person examination after their telemedicine consultation. These results contribute to the idea that virtual care may well be a means of buffering some of the impact that the veterinary shortage is contributing to. Telemedicine predicts that a percentage of pets and owners need not go through the stress of clinic visits for certain appointment types; this will likely be of benefit to the overburdened emergency hospitals and family veterinary clinics, as well as to those patients who are prone to experiencing flare-ups of stress-related conditions such as cystitis, pancreatitis, or inflammatory bowel disease.

And patients aren't the only ones stressed in brick-and-mortar practice: veterinary professionals urgently need relief from the high-pressure environment in which they work these days. According to an American Veterinary Medical Association survey, up to 44 per cent of veterinarians have considered quitting the profession, and it is well known that the mental health challenges created by poor work-life balance in the veterinary profession and the excessive burnout rate are contributing to the current veterinary shortage and access to care issues. The latest Merck Veterinarian Wellbeing Study showed that 59.1 per cent of veterinarians in the United States report moderate to high levels of burnout. Another study published in the *Journal of the American Veterinary Medical Association* showed that 86.7 per cent of veterinarians have moderate to high levels of burnout. These statistics urgently need to be changed, and telemedicine may have the potential to help veterinarians achieve better work-life balance.

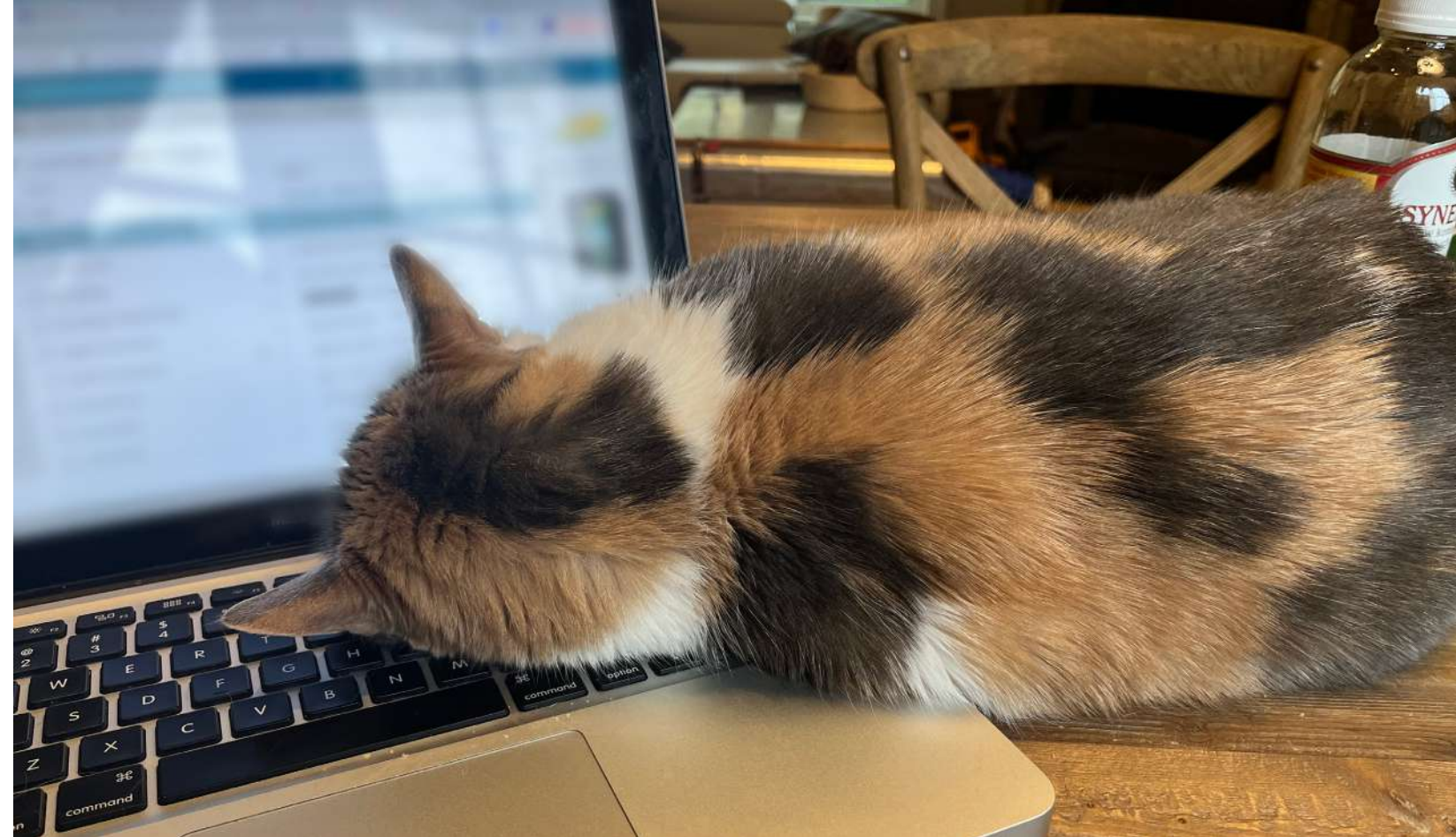
So as a veterinarian, what do you need to know about telemedicine? For veterinarians who live in provinces (such as BC), territories, or states, where the regulatory bodies permit the practice of telemedicine and allow for virtual establishment of the VCPR, the telemedicine guidelines can sometimes appear a bit daunting to navigate. As previously stated, while telemedicine guidelines do vary from one jurisdiction to another, the core obligations and responsibilities of the veterinary professional practising telemedicine generally remain consistent in the following:

1. Veterinarians must hold a valid veterinary license in the jurisdiction where they are practising.
2. Veterinarians must be aware of and familiar with the telemedicine standards and regulations set by the licensing body in their jurisdiction.

“IS SOME VETERINARY CARE VIA VIRTUAL MEANS BETTER THAN NO VETERINARY CARE?”

3. Veterinarians must assess the suitability of each telemedicine consultation: is this a patient who would be better served by an in-person examination if they are able to access veterinary services in a timely manner?
4. Where telemedicine-established VCPRs are permitted, veterinarians need to take the necessary steps to establish valid VCPRs with the clients and patients. Are the clients aware of the veterinarian's physical location and the accredited facility where their medical records are stored? Has the veterinarian obtained sufficient knowledge and information about the patients through the virtual means accessible to them to safely dispense veterinary advice and any treatments or prescriptions that are indicated?
5. Veterinarians' medical records pertaining to telemedicine consults must be as complete and thorough as the records kept for hands-on care services. Telemedicine records need to be kept at an accredited veterinary facility in the province of licensure and must be readily accessible to clients and any other veterinarians involved in the patients' care to ensure continuity of care and to make sure all parties involved are apprised of current medical problems and associated treatments.
6. Where prescriptions are permitted through virtually established VCPRs, they are generally meant to fulfill short-term requirements only, unless there are well-documented reasons in the medical records that justify the dispensing of larger quantities. Additionally, all telemedicine prescriptions must be non-controlled drugs.

On the topic of prescriptions, one of the logistical and medical difficulties with telemedicine practice is the requirement that veterinarians be present for hands-on care, or have alternative arrangements in place, in the instance of an adverse reaction or lack of response to treatment. Given that telemedicine veterinarians are frequently located in different regions than their patients and that 20 per cent of pet owners in Canada are unable to obtain hands-on care due to either financial barriers or inability to book an appointment, this requirement presents a true conundrum. Is some veterinary care via virtual means better than no veterinary care? Arguably yes—the provision of virtual treatment is generally in the best interest of both animal and human welfare. Telemedicine veterinarians should do their utmost to have clinic arrangements in place for the referral of physical care for their virtual patients when needed. If such arrangements are impossible in particular locations, then clients need to be informed of this extra layer of risk that prescriptions may entail when making decisions about their pets, and veterinarians should account for this lack of physical care when making prescribing decisions: for example, perhaps a slightly less efficacious drug is selected because it has a better side effect profile and lower frequency of adverse reactions.



Dr. Koharik Arman and her cat Nermal doing telemedicine.

Fortunately, early data coming out of Britain provides some comfort on the issue of risk with virtual treatment. A clinical audit conducted by the Royal College of Veterinary Surgeons showed a very low incidence of adverse reactions in patients prescribed medications via telemedicine using a smartphone app called Jooi Petcare. Adverse effects were classified as mild and were only documented in 0.8 per cent of cases where animals received medications through virtual care on the app. The audit also concluded that 89 per cent of prescribed treatments fully resolved the presenting issue or resulted in the anticipated response, and that no harm was done to any patients who received care on the platform. Notably, it was also found that 99.3 per cent of the antimicrobials that were prescribed through the app were first-line antibiotics, providing confidence that veterinarians can be trusted to practice just as responsibly with respect to antimicrobial stewardship via telemedicine as they do in brick-and-mortar practice. Many telemedicine platforms send out home testing kits for cytology, cultures, sensitivities, and so forth to help diagnose conditions such as skin issues and urinary tract issues. Veterinarians should be mindful that antimicrobial stewardship encompasses more than antibiotic selection, and should consider all aspects of stewardship when making clinical decisions.

Despite the favourable safety data released by the Royal College of Veterinary Surgeons, as with all recommended veterinary treatments or procedures that entail risk, a high priority for veterinarians practising telemedicine will be obtaining informed consent from clients. Veterinarians will need to have

thorough discussions with owners about the increased risk that may come from starting treatments without access to after-hours clinics or on-call veterinarians available to help them. To help ensure that veterinarians consistently practise responsible and safe telemedicine, and to increase professional confidence in this modality of care delivery, one helpful measure would be to broadly incorporate telemedicine education into veterinary student curricula. A recent survey of American veterinarians and veterinary technicians about the use of telemedicine in veterinary practice revealed that only 10 per cent of the respondents had received education about the use of telemedicine, and 75 per cent felt that it should be incorporated into veterinary educational curricula.

Ultimately, regardless of whether you are for or against veterinary telemedicine, the demand for telehealth is increasing, not decreasing, and with statistics showing that 38 per cent of the Canadians who adopted pets during the pandemic fell into the 18-to-24 age range, the “digital natives,” our profession will need to keep pace with their care requirements and particularly their expectations for virtual care.

Regulatory bodies can and should implement safeguards to protect the public, while also facilitating the use of innovative solutions, technologies, and modalities of care delivery to enable veterinarians to assist as many pets as possible. We must place trust in our professionals, the veterinarians practising telemedicine, to use their expertise, best clinical judgment, and their extensive education and practice experience to inform owners about treatment options and risks, from platinum treatment models down to the most cost-efficient plans. As Dr. Theresa Bernardo, professor at the Ontario Veterinary College has said, “Preparing for success in the 21st century includes considering new models of service delivery, new areas of research, and ensuring graduating veterinarians have the day-one competencies needed to adapt to this new technological world of health informatics, which includes the use of telemedicine and artificial intelligence.”

Telemedicine is an area of veterinary practice that will continue to mature and evolve. In conjunction with other solutions being explored within the profession, we can hope that telemedicine is one solution that will help our profession rise above its current state of crisis, and contribute to a happier and healthier public and pet population.

The CVBC's guidelines for the use of telemedicine can be found here: www.cvbc.ca/wp-content/uploads/2021/10/CVBC-Guidelines-Update-Telemedicine-July-2021-FINAL-for-posting.pdf.

To save space, the references for this article are made available on the *Chapter's* website at www.canadianveterinarians.net/sbcv/west-coast-veterinarian-magazine. **WCV**

“THERE IS A MISCONCEPTION THAT A LONGER FASTING TIME REDUCES THE PROBABILITY OF GER.”

BRACHYCEPHALIC ANAESTHESIA ORIENTED TO DENTAL PROCEDURES

BY ADRIANA REGALADO, MVZ, AVDC

There are two terms that most veterinarians prefer not to put together: “brachycephalic anaesthesia” and “long dentistry.”

Having hesitations about performing multiple extractions on a lovely four-year-old food-loving French Bulldog named Diva who weighs 16 kilograms is entirely valid. Your last experience with Diva was when you performed her spay. Her surgery took you twice as much time, she was difficult to intubate, and she became hypoxic. In addition, you spent almost an hour talking with her owners about the possibility of transferring Diva to an overnight care facility to control her non-stop regurgitation and possible aspiration pneumonia. We have all had days like that one, and we all have patients like Diva. We will continue to see more brachycephalic breeds with undiagnosed gastrointestinal issues, untreated brachycephalic obstructive airway syndrome (BOAS), and extensive dental problems. The focus for this article is on anaesthesia for dentistry.

My previous article in issue 47 (June 2022) of *West Coast Veterinarian* discussed the value of collecting data from owners using a questionnaire that targets clinical signs of BOAS, reflux, and sleep apnea. We also covered the pre-anaesthetic physical exam, facial exam, and the importance of the exercise test in grading BOAS. The main goals for this article is to briefly review other brachycephalic-associated conditions that can affect the outcome of general anaesthesia during a dental procedure, to familiarize ourselves with the current anaesthetic protocols, and also to discuss possible complications.

Gastrointestinal (GI) disturbances are one category of breed-associated conditions that affect general anaesthesia. There are multiple articles that report a correlation between the degree of BOAS and the severity of GI signs. Even an asymptomatic brachycephalic patient may have mild digestive inflammation.

Some of these conditions are congenital, such as esophageal deviation in English Bulldogs, which results in saliva retention. Pyloric mucosal hyperplasia with or without pyloric stenosis affects Boxers and Boston terriers.

Other GI illnesses are acquired; for example, axial hiatal hernias (AHHs) in French Bulldogs and English Bulldogs. An AHH develops due to the pressure differences between the abdomen and the esophagus. Gastroesophageal reflux (GER) will result in upper esophageal, pharyngeal, and laryngeal inflammation and distal esophagitis. Reflux frequently happens during inspiration when the negative intra-thoracic pressures and the positive abdominal pressure increases.

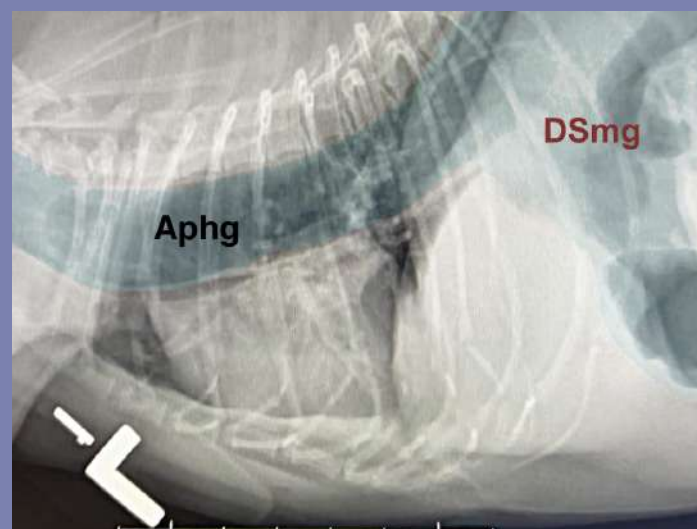
Another explanation for the high incidence of GI problems is that the respiratory distress in dogs affected with BOAS stimulates the autonomous sympathetic nervous system. As a result, gastric motility slows, and emptying time increases. It is not uncommon for nervous and excited dogs to be diagnosed with chronic aerophagia, contributing to increased intra-gastric pressure.

Since one of the factors that increases complications is the length of general anaesthesia, and many brachycephalic dogs have multiple dental pathologies, managing gastrointestinal disease before a dental procedure (see Table 1) will significantly reduce the risk of esophagitis, stricture formation, aspiration pneumonia, and rhinitis.

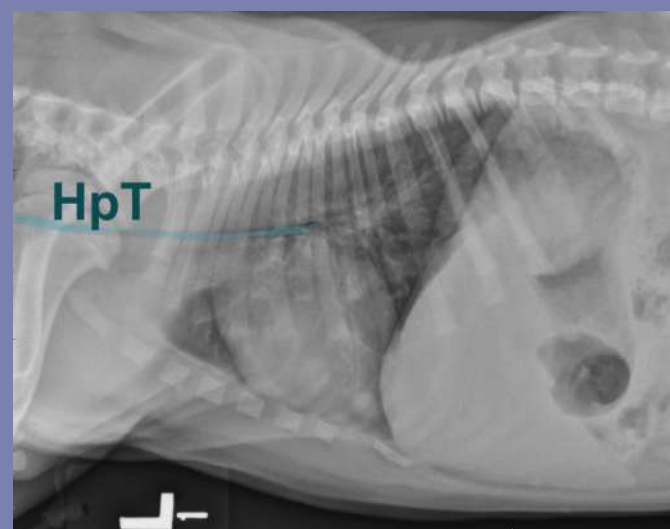
We want to reduce gastric content via fasting, increase gastric pH, and maintain the lower esophageal sphincter tone. There is a misconception that a longer fasting time reduces the probability of GER. However, this can be counterproductive, as extended fasting will only increase gastric acid.

The current recommendation is to restrict liquids for three hours before anaesthesia. Solid food should be restricted with a minimum buffer time of five hours for a light meal (one-quarter of a heavy meal) and nine hours for a heavy meal (total daily food intake).

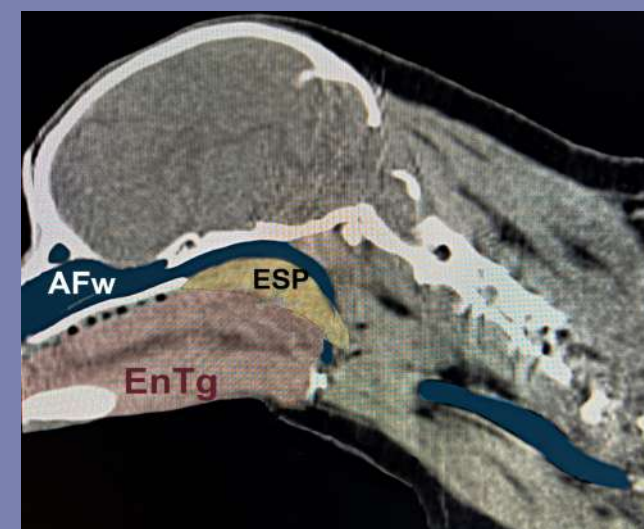
It is crucial to maintain the patient with an oxygen face mask after extubation until the patient is awake enough to be able to maintain a head-up position without assistance. Then a rubber ball toy can be placed between the upper and lower jaws to allow adequate airflow during recovery.



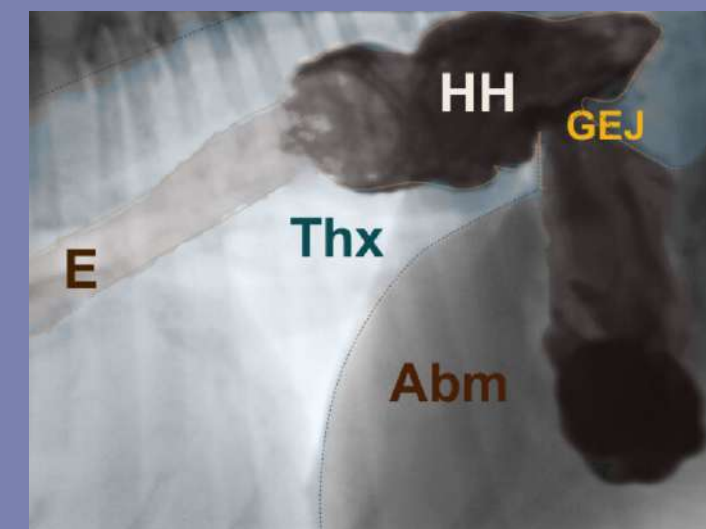
Chest X-ray showing severe aerophagia (Aphg) and dilated stomach (DSmg) as a result of anxiety. These conditions will predispose the patient to gastric reflux during general anaesthesia.



Chest X-ray demonstrating a narrow/hypoplastic trachea (Hpt). The radiograph can be used to measure the diameter of the endotracheal tube for intubation.



Computer tomography image showing an elongated soft palate (ESP). An abnormally enlarged tongue (EnTg) can be seen restricting the airflow (AFw) in the oropharynx and pharynx.



Fluoroscopy image confirming a sliding hiatal hernia. The patient is a brachycephalic breed with a history of chronic gastroesophageal reflux. The gastroesophageal junction (GEJ) is displaced cranially to the esophageal hiatus. Esophagus (E); thorax (Thx); abdomen (Abm); hiatal hernia (HH).

Medication name	Effect	Administration	Notes
Prokinetic			
Metoclopramide	Dopamine 2-antagonist and weak 5-HT ₃ antagonist	High-dose bolus loading 1 mg/kg intravenously followed by continuous infusion at a rate of 1 mg/kg/h; can also be given at 1–3 mg/kg subcutaneously	Low dose does not have a significant effect on GER; peripheral prokinetic
Decrease hydrochloric acid production			
Ranitidine	H ₂ blocker	If given before anaesthesia and before atropine at 2 mg/kg, will increase lower esophageal sphincter tone	Has no effects if administered after atropine; also no effect if intravenous bolus of 2 mg/kg (6 hours) is given before anaesthesia
Omeprazole (esomeprazole)	Proton pump inhibitor	Intravenous esomeprazole at 1 mg/kg	Significant increase in gastric and esophageal pH, but the drug does not significantly decrease GER
Control nausea and vomiting			
Ondansetron	5-HT ₃ receptor antagonist; anti-emetic; anti-nausea	0.2–0.5 mg/kg subcutaneously or intravenously	Has a central effect preventing the stimulation of the emetic brain stem by the vagal nerve; the peripheral effect is achieved by blocking the abdominal vagal stimuli in the gastrointestinal tract
Maropitant citrate	NK1 antagonist; anti-nausea	1 mg/kg subcutaneously 2 mg/kg orally At least 45 minutes before surgery	Its central anti-nausea action is due to the blockade of NK1 receptors in the emetic brain stem
Combined effects and combinations			
Erythromycin	Stimulation of motilin	200 mg given orally 2 hours before surgery	
Esomeprazole and cisapride		Can be given at 1 mg/kg intravenously	Significant decrease of reflux in anaesthetized patients

TABLE 1: Medications for reducing the probability of gastrointestinal symptoms during anaesthesia.

Sources: H. Kenward, J. Elliott, T. Lee, and L. Pelligand. "Anti-Nausea Effects and Pharmacokinetics of Ondansetron, Maropitant and Metoclopramide in a Low-Dose Cisplatin Model of Nausea and Vomiting in the Dog: A Blinded Crossover Study." *BMC Veterinary Research* 13, no. 1 (August 2017): 244. DOI: 10.1186/s12917-017-1156-7. PMID:28814338; PMCID: PMC5559813.

F. Downing and S. Gibson. "Anaesthesia of Brachycephalic Dogs." *Journal of Small Animal Practice* 59, no. 12 (December 2018): 725–733. DOI: 10.1111/jsap.12948.

Contrary to what owners believe, snoring at night is not an indication of good sleep; it is the opposite. Almost 60 per cent of brachycephalic dogs experience sleep deprivation and chronic sleep apnea. This condition can increase the risk with anaesthesia because the dog is in a chronic state of hypoxemia and hypercapnia. Also, hepatic diseases, mainly hepatic parenchyma inflammation and fibrosis, may result from chronic hypoxia. A possible change in these pets is reduced alanine aminotransferase.

In the previous article, we reviewed BOAS's primary and secondary components and how they affect the brachycephalic dog's

breathing capacity and induce a state of chronic hypoxia. Chronically hypoxemic dogs will have decreased partial pressure oxygen and increased carbon dioxide levels, resulting in compensatory increases in hematocrit and hemoglobin levels. The physiological mechanism involved in this adjustment is the activation of the medulla by stimulating chemoreceptors in the carotid and aortic bodies.

These two values are measured with arterial blood gas analysis, which is the gold standard for evaluating pulmonary gaseous exchange. The aftereffects of chronic hypoxia are so profound that they induce an acute and subclinical inflammatory state contributing to the development of hypercoagulability (shortened clotting times and delayed fibrinolysis). At the time of this writing, we do not have evidence that this condition requires any medical intervention.

Knowledge of possible blood gas disturbances will allow the anaesthetic team to prepare for potential complications such as ventricular arrhythmia and decreased contractility of the myocardium.

Even though obesity can affect many breeds and not only brachycephalic dogs, we have to be less tolerant of cute chubby brachies. High body scoring will be unmistakable and lead to complications during general anaesthesia. A typical challenge is giving accurate drug doses, which should be calculated by the lean weight of the animal. Another challenge is making sure the premedication is injected into the musculature and not the fat layer. We recommend that you and your team get familiar with the body condition scores specific for brachycephalic breeds. For example, see the University of Cambridge's body condition score chart for Pugs (www.vet.cam.ac.uk/files/media/Pug_health_scheme_BCS_v2.jpg).

The physical status of the brachycephalic breeds is classified by the American Society of Anesthesiologists as a "patient with mild systemic disease" that does not

limit normal function (ASA II). It is suspected that brachycephalic breeds might have a high resting vagal tone, which could make them susceptible to sinus bradycardia. This represents a moderate risk of mortality. French Bulldogs, Boxers, and English Bulldogs may also have congenital myocardial pathologies that should be identified and addressed before general anaesthesia.

ADMISSION TO THE HOSPITAL

To prevent aerophagia and hyperthermia, stress should be reduced to a minimum. Environmental accommodations, such as admitting the patient early before the waiting room is at maximum capacity with other anxious dogs, should be considered. For exceptional cases, and only when it is beneficial for the patient and the team, an exemption can be made to allow the owner to stay until the patient is sedated. This may greatly reduce stress. The therapeutic way is by giving anxiolytics or serotonin reuptake inhibitors to be administered orally two hours before hospital arrival. The recommendations are trazodone (5–10 mg/kg) and/or gabapentin (20 mg/kg).

PRE-MEDICATION

Selection of drugs will be based on availability, clinician experience, the patient's age and temperament, the presence of oral pain, and the nature of the procedure. An important consideration is that airway obstruction is likely to increase due to the relaxation of the pharyngeal muscle tone and induced recumbency caused by the sedative drugs. The patient should be kept under direct supervision at all times after premedication.

PRE-OXYGENATION

This step is essential because as already mentioned, we may have a patient with some level of hypoxia. Pre-oxygenation will increase arterial oxygen saturation and reduce the desaturation rate if apnea develops. The current recommendation is to use 100 per cent oxygen for a minimum of three minutes, delivered by a well-fitting facemask. Care should be taken to avoid stressing the patient during this critical step. Removing the rubber seal from the facemask may help some patients accept the mask.

	Drug	Dosage
Premedication	Ondansetron	0.2–0.5 mg/kg IV
	Maropitant	1 mg/kg SQ
	Acepromazine	5–20 µg/kg IV or IM
	Medetomidine	5–20 µg/kg IV or IM
	Dexmedetomidine	1–5 µg/kg IV or IM
	Methadone	0.1–0.3 mg/kg IV, IM, or SQ
	Butorphanol	0.1–0.3 mg/kg IV or IM
Induction	Propofol	1–4 mg/kg titrated to effect IV
	Alfaxalone	2 mg/kg titrated to effect IV
Post-operative	Acepromazine	5–10 µg/kg every 3–6 hours IV or IM
	Medetomidine	1–3 µg/kg every hour IV or IM
	Dexmedetomidine	0.5–1 µg/kg every hour IV or IM
	Buprenorphine	0.01–0.02 mg/kg IV or IM

TABLE 2: Medications for anaesthesia of brachycephalic dogs.

Sources: H. Kenward, J. Elliott, T. Lee, and L. Pelligand. "Anti-Nausea Effects and Pharmacokinetics of Ondansetron, Maropitant and Metoclopramide in a Low-Dose Cisplatin Model of Nausea and Vomiting in the Dog: A Blinded Crossover Study." *BMC Veterinary Research* 13, no. 1 (August 2017): 244. DOI: 10.1186/s12917-017-1156-7. PMID:28814338; PMCID: PMC5559813.

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MAINTENANCE

The use of a multi-parameter monitor is essential, and in some cases, the use of a ventilator may be required. The initial ventilator settings are as follows: respiratory rate 14 breaths/minute, tidal volume 110 ml, and inspiratory-to-expiratory ratio 1:3.

LOCAL ANAESTHESIA

Oral nerve desensitization allows us to keep the patient in a light anaesthesia plane and avoid complications associated with deeper anaesthesia, such as hypotension, hypothermia, and arrhythmia. For more information about brachycephalic dentistry, refer to issue 46 (March 2022) of *West Coast Veterinarian*.

INTRAOPERATIVE COMPLICATIONS

All brachycephalic breeds should be constantly monitored for GER. Frequent verification of the endotracheal tube cuff is recommended as well as using cotton swabs to check deep into the pharynx for any evidence of reflux. We recommended doing this procedure before induction, before and after switching the patient from one side to another, and before and after extubation. If there is any gastric fluid, its pH should be tested. Regardless of the pH, any liquid should be removed by suction, but if the pH is acidic, then lavage the esophagus with water and repeat the suction, or use bicarbonate solution instillation into the esophagus.

EXTUBATION AND RECOVERY

Late extubation is recommended. Afterward, the patient should be maintained in sternal recumbency with their head elevated and neck extended. The tongue can be drawn rostrally and out of the mouth as much as possible. Since many brachycephalic breeds have macroglossia, a rubber toy (such as a Kong toy) can be used to maintain the mouth open, providing a free airway. Staff should always be prepared for re-intubation or tracheotomy if necessary. Administration of corticosteroids, a bronchodilator, and epinephrine nebulization can also be used.

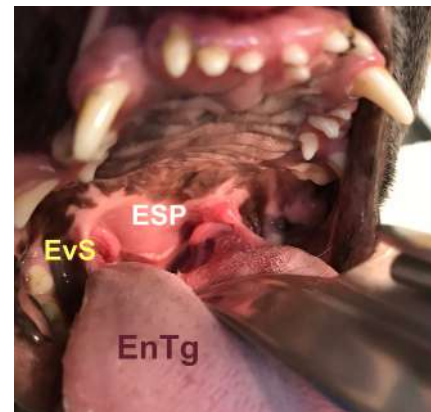
Maintaining a patient in a normothermic state is key to preventing post-operative complications. Hypothermia will induce shivering, and this will increase oxygen

INTUBATION/INDUCTION

There are multiple techniques for selecting the right size of an endotracheal tube. One method is by palpation, and another is by measuring the internal diameter of the trachea. As we know, the brachycephalic patient may have a narrower trachea that requires a smaller endotracheal tube. The pharyngeal opening may also be surprisingly narrow compared to the palpated tracheal lumen estimation. Our recommendation is to have multiple sizes available for intubation; alternatives such as V-gel (supraglottic airway) or jet ventilation could also be used. However, the team should be prepared for tracheostomy in patients with compromised upper respiratory airways. See Table 2 for a list of induction medications.

POSSIBLE COMPLICATIONS

During general anaesthesia, different medications will have other effects on GER. Combinations such as propofol and thiopental, morphine, and morphine-thiopental-isoflurane will increase the incidence of GER. On the contrary, using meperidine and meperidine-acepromazine will decrease the incidence of GER.



Elongated soft palate (ESP), everted tonsils (EvS), and enlarged and thicker tongue (EnTg) are some of the BOAS manifestations that can contribute to difficult intubation of brachycephalic breeds.



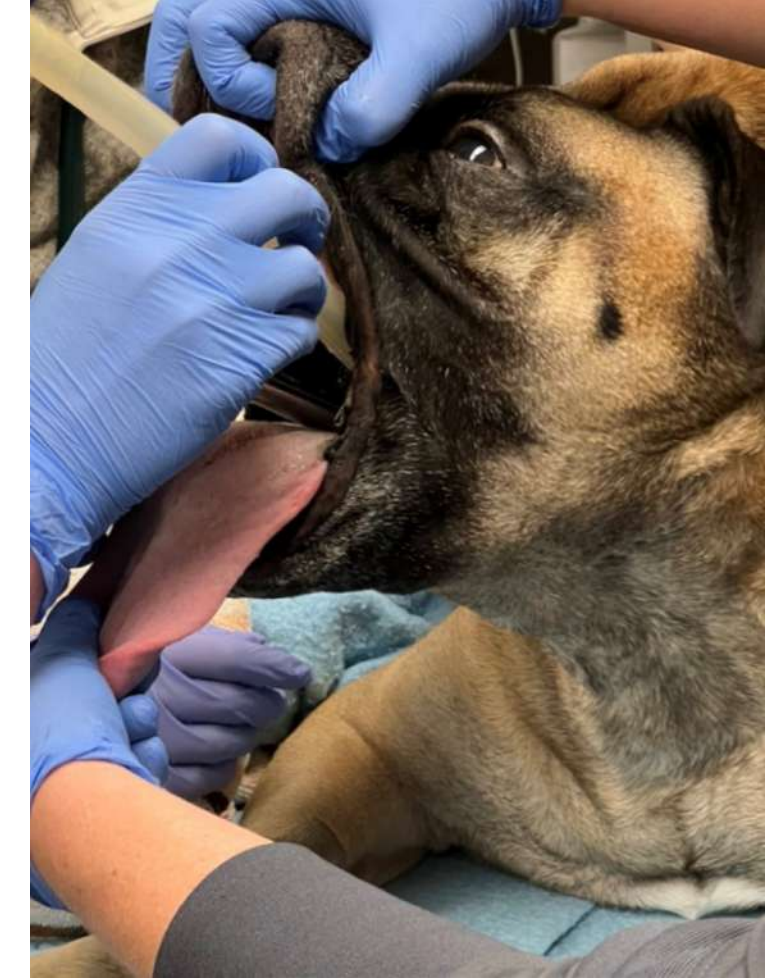
Notice the small diameter of the endotracheal tube used in the intubation of this brachycephalic patient. During intubation, multiple sizes of endotracheal tubes (ETT) should be available.

PHOTOS COURTESY ADRIANA REGALADO

“... WE HAVE TO BE LESS TOLERANT OF CUTE CHUBBY BRACHIES.”

demand significantly. On the other hand, hyperthermia will cause panting, which will increase respiratory distress.

Brachycephalic anaesthesia requires veterinarians and supporting staff to have deep knowledge and understanding of the possible complications. The client should be informed about the associated risk of general anaesthesia and the possibility that further care will be needed. Referral of cases with severe dental disease or with a multisystemic condition is strongly advised. Patients with BOAS, gastrointestinal issues, and obesity should be treated before the dental procedure to reduce the risk of complications. I hope this series of articles on brachycephalic breeds helps veterinarians facilitate client education and supports staff training. **WCV**



Staff should always be prepared for re-intubation or tracheotomy if necessary.



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UNWANTED BEHAVIOUR IN HORSES:

IS IT PAIN, "BEHAVIOURAL," OR BOTH?

BY LAUREN FRASER, MSc, CHBC



“IS THIS UNWANTED BEHAVIOUR A RESULT OF PAIN, OR SOMETHING ELSE?”

Scanning through the schedule, you shake your head, reading out some of the presenting complaints listed for the day's appointments: won't load on trailer, kicking the farrier, bites when touched, rears while lunged. You mutter, to no one in particular, "These all sound like behavioural issues, not medical ones. Can't people just train their horses?"

Unwanted behaviours in horses can be problematic. When such behaviours occur, they can pose a risk of injury to people and horses, damage the bond between owner and horse, compromise welfare, or increase expenses for the owner. Research has shown that unwanted behaviours in horses are a key factor leading to wastage and a greater risk of being sent for slaughter. The etiology of unwanted behaviour can be multi-factorial, making it challenging to tease out whether the issue is truly just "behavioural," or has other origins, such as pain.

In many instances, unwanted behaviours can indeed be caused by either a deficit in training or result from prior learning. Horses who have not been progressively taught how to load and haul in a trailer may balk outside, unsure what is being asked of them. Or a horse may pull away when being led to the trailer after a prior handler used escalating pressure to try and train loading. Others, who received prior, appropriate training, may not load with a new handler after learning that balking results in delayed loading attempts, or an opportunity to graze near the trailer. These issues are not "behavioural": they reflect gaps in training or prior learning.

Understanding how horses learn is a critical component to teasing apart the question, "Is this unwanted behaviour a result of pain, or something else?" While a full understanding of how horses learn requires in-depth study, veterinarians armed with a basic understanding of key learning processes are better able to help clients get to the heart of unwanted behaviours.

LEARNING BASICS

Sensitization and habituation are forms of non-associative learning, responsible for changes in an animal's reflexive responses to stimuli. For example, a farrier trimming a yearling drops her nippers in the barn aisle, startling the horse. A few moments later, a boarder slams the tack room door, startling the horse again. This triggers the handler to yell at the boarder, evoking another big startle. The horse is now sensitized to loud, sudden noises, making them more likely to startle at noises in the future.

Repeatedly evoking a reflexive response can also result in habituation, which is a reduction in intensity or probability of that response occurring. The degree to which habituation occurs depends on numerous factors, such as the intensity of the stimulus, or how frequently it occurs over a given period. Habituation is not a permanent state, and horses habituated to a stimulus can rapidly become sensitized given the right conditions.

Associative learning encompasses both operant and classical conditioning. Operant conditioning, "trial and error" learning, involves learning that one's voluntary behaviour leads to consequences. Desirable consequences can reinforce behaviours, and undesirable consequences can punish behaviours. For example, if a horse walking toward the indoor arena pulls the lead rope out of the handler's grasp, resulting in an opportunity to graze, the behaviour of pulling may be reinforced. If, however, the same horse meets resistance as the handler closes their grip on the rope, the behaviour of pulling may be punished. Both consequences can shape the future expression of pulling behaviour.

In horse training, voluntary and operant behaviours are being reinforced (or punished, as the case may be). Classical conditioning—a "this predicts that" effect where associations are created for horses between stimuli—is also at play. Classical conditioning is responsible when horses develop involuntary emotional associations about a particular stimulus. For example, a foal roughly handled during its first vaccines may then associate syringes or veterinarians with rough handling, and thus will be frightened at future exposure to these stimuli. If, however, the technician feeds a steady stream of small treats to the foal while the veterinarian calmly proceeds with the injection, a different association about the event will be created: vaccinations predict feeling safe and eating treats. It is through the power of classical conditioning that horses can develop persistent, strong learned fears in as little as one brief event. As these types of behavioural injuries do not spontaneously decrease and frequently worsen with subsequent negative experiences, proper treatment from a qualified behaviour professional is recommended.

When a stimulus is perceived by a horse to be potentially injurious, the sympathetic nervous system triggers the horse to behave in ways often viewed as undesirable by the handler. A cascade of rapidly released stress hormones motivate the horse to try to survive exposure to the stimulus, usually through a variety of escape or avoidance behaviours: freezing, fidgeting, fleeing, or fighting. If such behaviours are routinely repressed by handlers, some horses may develop learned helplessness, a condition where the horse learns that none of their actions can prevent very stressful or painful things from happening. These horses may appear depressed or unresponsive to stimuli.

Once negative conditioned emotional responses to stimuli have been created, horses may begin to feel stress and fear well in advance of the appearance of the stimulus. The sound of the horse trailer being hooked up may cause the mare to weave in her stall in nervous anticipation of removal of her only neighbour. The horse tied in the barn aisle may start to paw as the trainer enters the tack room to get the saddle. Conditioned emotional responses respond well to evidence-based, low-stress behaviour modification techniques such as systematic desensitization and counter-conditioning. Graded exposure to increasing "levels" of the stimulus in a way that does not trigger fear or stress is paired with something pleasant, resulting in the stimulus instead beginning to predict good things for the horse.

IS IT PAIN?

All behaviour serves a purpose for the animal performing the behaviour. Research on horses has shown that underlying conditions that cause unwanted behaviours may be misdiagnosed as "behavioural" issues. "Especially for these low-grade lameness issues—musculoskeletal issues—it can be really challenging to diagnose, and it's so much easier to say, 'It's just a bad horse,'" says Jackie Kaufman, DVM, MSc, DACVS-LA, of Elder's Equine Veterinary Service in Manitoba.

Pain-induced behaviours may serve the animal in several ways. Pain may trigger behaviours that result in altered or limited movement, protecting the horse from experiencing additional pain sensations, or worsening of the condition. Decreased movement could also facilitate rest and recovery. The expression of pain-induced behaviours, such as those from gastric ulcers, can be variable between individuals experiencing the same condition, says Dr. Kaufman. "Some horses will actually have ulcers and not show any clinical signs. Other horses will have minor ulcers but be colicky. And some will just be girthy, or have performance issues, trying to buck or kick under saddle. A lot of the time, we're getting 'performance issues' as the complaint for what is actually gastric ulcers."



ABOVE: Refusal or reluctance to trailer load can be caused by emotions such as fear, or by underlying physical conditions, lack of appropriate training, or other factors.

PAGE 36: Unwanted behaviours during grooming or tacking up can be a result of situational pain in that moment, or can result from emotional anticipation of an event about to occur, such as training, that the horse perceives as frightening or painful.

“RESEARCH ON HORSES HAS SHOWN THAT UNDERLYING CONDITIONS THAT CAUSE UNWANTED BEHAVIOURS MAY BE MISDIAGNOSED AS ‘BEHAVIOURAL’ ISSUES.”

While pain perception is highly subjective, the sensation of pain, processed through the limbic system, is always accompanied by an emotion. Horses may experience feelings of fear or anger, leading to a wide range of behavioural responses—and pain tolerances—to what may be the same stimulus. A horse with osteoarthritis may bolt in fear when ridden, or refuse to trailer load, or even display aggressive behaviours.

Pain behaviours may also serve a communicative function for the horse experiencing pain, warning others to alter their own behaviour. Such behaviours may include ear pinning, biting, kicking, striking, or other behaviours meant to signal to another to increase their distance. Alternately, attempts to escape the situation and source of pain, such as bolting, pulling away in hand, or withdrawing a held hoof may occur. Depression-like states are also correlated with pain in horses.

Qualities of experienced pain may also affect any behavioural expression. Sharp, sudden pain often results in more obvious, dramatic behavioural responses. Dull, achy pain can be harder for observers to identify. Situational pain may result in normal behaviour outside the context in which pain occurs. Ongoing, chronic pain may result in more global effects to the horse's behaviour, and a decreased tolerance for any additional stressors in life. It is widely accepted that whether acute or chronic, experiencing pain compromises an animal's performance, health, and welfare.



Horses who display unwanted behaviours during hoof handling or farrier work should be thoroughly examined, and any underlying painful conditions should be addressed. Anxiolytics and pain medications can be helpful adjuncts alongside appropriate behaviour modification work with horses experiencing fear, anxiety, or pain related to hoof handling.

Being able to identify both acute and chronic signs of pain in horses is a learnable skill. Research on the use of validated pain scales for horses is promising, showing reliable links between the presence of pain and even subtle behaviours such as ear position changes, eye or jaw tension, and changes in behaviour related to the chin and mouth. Whether composite or focused on a specific part of the body, pain scales have been tested against different types of pain as well as with different ages of horses. Understanding the benefits—and any potential limitations of these scales—can also improve a clinician's ability to recognize pain.

While pain scales pose a promising way to hone the observation skills of clinicians, most pain scales have not yet been tested extensively in clinical settings. As in human medicine, feasibility and reliability are critical factors in determining whether a pain scale can be helpful in real-world settings. Some scales require more time than may be available to use in critical situations, while others require prior training by staff to achieve repeatable results. Even when a clinician suspects pain, “It can be a challenge to convince owners that something is going on too,” says Dr. Kaufman. What an owner views as normal for that horse may indeed be chronic, pain-induced behaviour.

When asked what she thinks colleagues can do to enhance their ability to better recognize pain in their patients, Dr. Kaufman says, “I would love to see more continuing education out there on recognizing pain in horses . . . I think there's just so much information out there that's not being formally put together in a way that we're able to easily digest. I think educating ourselves is a great thing, and a great step, but it needs to be focused somehow. That's the biggest thing: just trying to educate ourselves on what the different pain assessment options are.”

Whether resulting from underlying physical conditions, lack of training, prior learning, or other factors not discussed here, such as genetics, veterinarians are in a unique position to assist horse owners dealing with unwanted behaviours in horses. By understanding common etiologies of unwanted behaviours, clinicians can guide owners toward solutions, diagnostics, and treatment, or referral to a qualified behaviour professional, while also enhancing the lives of their equine patients. [WCV](#)

1, 2, 3 CHOOSE

BY ELAINE KLEMMENSEN, DVM, CEC

While doing research for an upcoming workshop, I came across a commencement speech on YouTube from Maharishi University, a small private university in Fairfield, Iowa, that features a “consciousness-based education.” I'm not sure what that means exactly, but the speech was by none other than one of Canada's finest comedic exports, Jim Carrey. He was, of course, funny in that over-the-top Jim Carrey way, but between his moments of goofiness, he offered the students this insight: “All the decisions we make are based on either fear or love.” Too many of us, he said, “choose our pathway out of fear.”

Carrey's words echo the work of psychologist Elisabeth Kübler-Ross, co-author of *Life Lessons: Two Experts on Death and Dying Teach Us about the Mysteries of Life and Living*, who says there are only two primary emotions: love and fear. Positive emotions like happiness, joy, and excitement come from love, while negative emotions like guilt, frustration, anger, and envy come from fear. Our amygdala, nestled in the most primitive part of our brain's fight and flight system is where we form memories and process strong emotions, like fear and love. This ancient part of our neuroanatomy serves an important function: it keeps us safe. It makes sure we remember the first time we touched a hot stove so we don't do it again. Strong emotions are our brain's way of saying, “Pay attention.” It isn't necessarily the emotion but rather our inability to sit in the discomfort of it that holds us hostage; opportunities wait just beyond the “feelings.”

I realized recently that all the good stuff in my life has followed moments of fear. Sometimes the fear felt like loneliness. Sometimes it felt like being overwhelmed. Sometimes it felt like paralysis. But every time I got to the other side of fear, the good stuff was waiting. I've decided I no longer want the angry almond, my amygdala, to hold me hostage. If there is good stuff waiting just beyond fear, how exactly do I get past it? How do I choose its opposite, love?

Step 1: Step outside your triggered sympathetic nervous system and do a reality check. Is there an immediate danger to your physical safety, or is it just your cave-person brain doing what it evolved to do? If the answer is “Yes, the danger is real” then listen up. Take action, and for heaven's sake, take your hand off the stove. If there is no immediate danger, then tell your fear monster to hush and move on.

Step 2: Acknowledge that fear is just an extreme emotional state. Name it, tame it, and take control. Commit to being in the driver's seat or being the creator of your life. You can spend your whole life imagining ghosts and worrying about the path ahead, but here is the truth. None of us know what the future holds. All we know for sure is what is happening right here, right now and the decisions we make at this moment.

Step 3: Once you've shifted into a more reflective state, that is, engaged your creative pre-frontal cortex, ask yourself “What are you really afraid of?” In my experience, we like to trick ourselves by disguising fear as something else to avoid dealing with it directly. Do any of these disguises sound familiar?

- I can't: Code for “I am afraid I might fail.”
- I shouldn't: Another way of saying I am afraid of being judged, also known as, “What will others think or say?”
- I would but: Otherwise known as the excuse game. The game where you forfeit the power you have over your life and your ability to choose and hand it over to others. I get it. It is a great option to have an excuse when things don't work out the way you'd hoped.

Step 4: Set aside your fear. That's right. Pick your fear monster up and put it back in the closet. Don't worry, it will still be there when you need it for the real dangers and also sometimes when you wish it would just stay in the closet.

Step 5: Choose love by:

- Focusing on what is within your control and moving forward despite your uncertainty.
- Asking for help and learning to accept it with grace.
- Sharing your amazing self with others as you build community and connections.
- Practising gratitude. Be as kind to yourself as you are to those you love.

You can spend your whole life waiting for the other shoe to drop, doing the “right” thing, or worrying about the future. You can fool yourself into believing it isn't fear that holds you back by disguising it in righteousness, responsibility, or blame. Or you can call it what it is and make a different choice.

To steal from the words of Jim Carrey: “You only ever have two choices. Love or fear. Choose love and don't ever let fear turn you against your playful heart.” [WCV](#)

“I REALIZED RECENTLY THAT ALL THE GOOD STUFF IN MY LIFE HAS FOLLOWED MOMENTS OF FEAR.”



FELINE COGNITIVE DYSFUNCTION SYNDROME

BY NICOLETTE JOOSTING, BSc, BVSc, DVM

Aging cats show significant behaviour changes. The most common of these are reported to be inappropriate vocalization (especially at night), increased affection, and house-soiling (see Box 1). By considering these behaviours not as problems but as clinical signs that require a thoughtful approach, we are able to identify manageable conditions that would otherwise be dismissed as “normal aging.”

One of these conditions is feline cognitive dysfunction syndrome (FCDS), an age-related decline in cognitive abilities, characterized by certain behavioural changes that cannot be attributed to any other medical condition.

Feline cognitive dysfunction syndrome, with all its similarities to Alzheimer’s and non-Alzheimer’s dementia in humans, can progress at varying rates and in my experience, occurs over a wide range of ages. It has been suggested that at least a third of cats aged 11 to 14 years, increasing to more than half of cats 15 years and older, may be showing at least one clinical sign FCDS.

We can use the acronym VISHDAAL, proposed by Sordo and Gunn-Moore in 2021, to describe the behaviours seen in cats with FCDS: excessive Vocalization, alterations in Interactions (e.g., increased affection), changes in the Sleep-wake cycle, House-soiling, Disorientation, alterations in

Activity levels, Anxiety, and Learning and memory. The behaviours included in this acronym (as opposed to DISHAAL, which was developed for dogs), are more specific to cats and are listed in order of prevalence.

The diagnosis of FCDS can only be made by ruling out other potential causes of the behaviour changes (see Box 2). Complicating this, some of these conditions may be concurrent and exacerbate the behavioural signs of FCDS. Senior cats frequently suffer from concurrent interacting conditions, which may be underdiagnosed, and by including questions on age-related behaviour changes as well as a mobility questionnaire in the history, together with a logical diagnostic workup, we may be able to identify when the cat has “dementia” concurrent with hypertension, hyperthyroidism, kidney disease, or any of the other differentials. In a cat showing any of the behavioural signs of FCDS, a minimum database would include a full physical examination, retinal (fundic) exam, blood pressure, hematology, serum biochemistry including thyroxine, and urinalysis. Additional diagnostic testing when indicated may include urine culture, free thyroxine, and abdominal and/or cardiac ultrasound. A CT may demonstrate brain atrophy, but it is rare that this diagnostic step is achieved. Immediately address pain as a cause with an analgesia trial, preferably with opioids. Initiate accessibility and comfort changes in the home. If clinical signs of FCDS persist despite treatment of concurrent illness, pain, and environmental changes, address the possibility of cognitive dysfunction.

Cognition in cats, as opposed to humans, is poorly understood. This makes it difficult to measure changes in cognition, especially since these may be subtle or unrecognizable by owners and clinicians. While there are some laboratory-based protocols developed to try to assess and measure cognitive dysfunction,

these are not practical in a clinical setting. Our clinical indication of progression or successful management (there is no cure) is based on clinical signs—the behaviour of the cat, along with pain scores and mobility scores, as reported by the owner.

Potential treatments (see Box 3), few of which are proven, are based on our limited understanding of the neuropathology. As for humans, it is thought that a combination of oxidative damage, vascular pathology, and compromised cerebrovascular blood flow contribute to the alterations seen in the brain. Stress, aging, disease, and environment are factors. The changes seen in the brain include atrophy of the cerebral cortex and basal ganglia, region-specific neuronal loss, increased ventricular size, vascular and perivascular changes, lipofuscin accumulation, beta-amyloid deposition, and tau hyperphosphorylation.

Appropriate environmental management, which is integrated into the accessibility changes all older cats need, can reduce the clinical impact. Before starting on drugs, supplements, and dietary changes, it is essential to encourage the owners to make key environmental changes for their elderly cats that greatly affect their quality of life. Owners can keep to one change at a time, to avoid exacerbating confusion and stress.

Any intervention needs to take into consideration both the cat and the owner. Elderly cats do not take oral medication well, nor do they readily accept supplements to their food. Dietary changes rarely go over well—older cats need to be fed what they prefer to maintain muscle and body condition score, and a diet change can exacerbate illness. Owners may not be able to give medications. Consider alternative medication routes, if applicable, such as transdermal or subcutaneous, which most cat owners manage very well. Determine which treatment will have priority—that is, what will make the most impact to the cat’s life, given all the issues the cat is currently experiencing. How much can the cat and the owners tolerate? Treat the concurrent conditions first, especially osteoarthritis pain, hypertension, and kidney disease, with a focus on managing hydration, controlling nausea, maintaining normotension, and supplementing B₁₂ in all older cats. Cure hyperthyroidism with radio-iodine therapy whenever possible.

When discussing treatments for FCDS, advise owners that there is little evidence for the treatments, this is trial-and-error, and be prepared for significant placebo effect or progression.

While the behaviour changes can be frustrating or upsetting for the owner, it helps both cat and owner when the behaviours are “rewarded” with understanding and love, rather than the cat being punished by being shouted at, ignored, or locked out of a room. Night-time vocalization, with the resulting sleep disruption, requires an understanding on the owner’s part that the cat is asking for help. Management of vocalization is multi-factorial—give the love and attention, offer and provide additional food resources, provide warm comfortable beds, treat the pain, do the simple

environmental changes, and in desperation, wear earplugs.

House-soiling—being unable to find or use the provided litterbox—may be simply solved by providing additional “hobble-in hobble-out” litterboxes or pee-pads, in the same room or space where the food, water, and sleeping area (with a heated bed) have been placed, as well as in other areas of the home. In this case, all potential medical issues, including osteoarthritis, must be considered when discussing litterbox accessibility with the owners. In my experience, there is no such thing as “everything being done,” but it takes a fair amount of follow-up and individual problem-solving for the household to find an acceptable solution.

It is important that the VISHDAAL behavioural signs are not simply dismissed as FCDS. Each time there is a change, owners need to consider that their cat may have developed another manageable or curable illness. Older cats find veterinary visits stressful and painful. To encourage the owners of an older cat to consider the diagnostic workup and veterinary care, train yourself and your staff in cat-friendly and cat-gentle techniques, and show owners how to make the trips into the clinic more comfortable and less stressful for the cat. Follow-up assessments on home care, behaviour, pain management, and mobility scores can be done by phone, video, text, or email.

Discuss euthanasia trigger points with owners. They may not recognize that the endless pacing, head-pressing, or getting stuck for periods of time is a problem. Usually, the cat can be clinically well, if the concurrent medical issues are well managed, but the cognitive decline at the end can reduce quality of life to such a degree that euthanasia is the humane option. In discussing quality of life on the follow-ups, consider whether the cat is aware of their surroundings, or if their dementia has progressed so far as to put them in a bare survival mode. This is where a home visit or a video call is most useful, as it is very difficult to assess feline behaviour and cognitive function in the clinic.

An integrated veterinary approach that takes into consideration the medical issues, home, and relationships that surround the aging cat may significantly reduce the suffering many aging cats experience.

Increased v ocalization, especially at night.
Altered social i nteractions and relationships, either with owners or other pets. May be attention seeking, aggression, hiding/decreased sociability.
Altered s leeping patterns.
H ouse-soiling.
Spatial d isorientation or confusion. Getting lost, trouble finding litter/food/water.
Temporal d isorientation. Forgetfulness—such as asking for food right after eating, decreased eating and drinking.
Altered a ctivity. Increased or decreased activity, pacing, wandering. Appetite changes. Repetitive behaviours. Decreased grooming.
A nxiety. Irritability, nervousness, hiding or remaining in one spot.
Altered l earning and memory. Being startled by objects they should be familiar with, loss of routine, trouble finding resources.

BOX 1: Common behavioural changes in aging cats. These symptoms are often described with the VISHDAAL acronym. (Adapted from Sordo and Gunn-Moore, 2021. See references.)

PHOTO BY ALEXAS_FOTOS/PIKABAY.COM

BY SCOTT NICOLL, BA, MA, LLB, AND GURINDER CHEEMA, BA, LLB

CHANGES IN THE WORKPLACE AND CONSTRUCTIVE DISMISSAL: KEY CONSIDERATIONS

Adaptability is an important aspect of managing a successful business. Often, employers need to make changes to their business operations because of external factors. The COVID-19 pandemic comes to mind as a timely example. Or employers may change the way they operate their business on their own accord. Perhaps their businesses are growing and they need to hire more staff. Alternatively, they may wish to scale back their operations.

The dynamic nature of businesses is akin to the employment relationship. Employment contracts outline employees' roles and responsibilities, though these are subject to change. Employees' roles and responsibilities may grow as a result of a promotion. Employees may wish to modify their roles, or employers may have to modify employees' roles to accommodate special circumstances. Whatever the case may be, the point remains: the employment relationship is dynamic.

Employers may make unilateral changes to the employment relationship that fall outside the original employment contract. However, this situation can result in a constructive dismissal if an employee does not accept such changes and quits their job. This column focuses on that constructive dismissal—an important legal concept that employers should be aware of and that highlights the dynamic nature of the employment relationship.

CONSTRUCTIVE DISMISSAL

Constructive dismissal occurs when an employer makes a unilateral change to a fundamental term of the employment contract, which the employee does not agree to and which causes the employee to leave their job. Typically, the unilateral change made by the employer does not benefit the employee in such situations. The lack of a formal dismissal of the employee is the reason that this concept is referred to as "constructive" dismissal.

Constructive dismissal can take two forms. First, employers may breach an express or implied term of employment that alters a fundamental term of the employment contract. Examples of fundamental breaches include an employer reducing an employee's pay, changing an employee's duties, and changing an employee's work hours.

Second, employers' conduct may demonstrate an intention not to be bound by the employment contract. A finding of constructive dismissal may result where the combined effects of an employer's actions evidence an employer's lack of intention to be bound by the employment contract. For example, a situation where an employee leaves their workplace because of a toxic workplace caused by continual harassment from their employer may amount to constructive dismissal.

Constructive dismissal has the potential to attract significant liability for employers. All of the normal termination of employment obligations are triggered when a court finds that an employee was constructively dismissed. You will recall that our last column discussed some of the rights employees have. Among these rights is the right to notice of the termination of their employment. An employee can seek damages for an employer's breach of the employment contract where no such notice is provided, such as in

constructive dismissal cases. Such damages are typically calculated in terms of the reasonable notice an employee is entitled to.

Does this mean you cannot make any changes to the terms of your employees' employment without liability? The short answer is no; not every change an employer makes to an employee's terms of employment amounts to constructive dismissal. Employers will not be liable for constructive dismissal when they make changes to significant terms of their employees' employment as long as they provide employees with sufficient notice and provide valuable consideration for the changed terms.

CASE EXAMPLES

In one case,¹ an employee was appointed to an executive director position for a seven-year term. The employee and his employer began negotiating a buyout halfway through the employee's term. The employee went on sick leave while the negotiations were ongoing. The employer suspended the employee with pay a week before the employee was scheduled to return to work in an apparent attempt to facilitate a buyout of the employee's contract. The employee eventually commenced a constructive dismissal action, and the employer then stopped the employee's salary and benefits on the argument that the employee had effectively resigned from his position.

In this case, the Supreme Court of Canada confirmed the test for a finding of constructive dismissal. First, an employer's unilateral change must be found to constitute a breach of the employment contract, and if such a breach is found, it must substantially alter an essential term of the contract. The second step of the analysis involves the court asking whether, at the time of breach, a reasonable person in the employee's position would conclude that the employer no longer intends to be bound by the terms of the contract.

The Supreme Court of Canada found that the employee's suspension was a unilateral act that substantially changed the terms of the employment contract. The employer did not have the authority, neither express

Medical differentials
Pain—multitude of causes, many of which may not be immediately obvious
Osteoarthritis, degenerative joint disease, other musculoskeletal problems
Hypertension
Chronic kidney disease, urinary tract infections, urinary tract neoplasia
Hyperthyroidism
Diabetes mellitus
Gastrointestinal disease, including IBD, lymphoma, other neoplasia
Chronic liver disease, including biliary cystadenoma, cholangiohepatitis, pancreatitis, neoplasia
Central nervous system, including CVA/stroke, neoplasia, cognitive dysfunction syndrome
Infectious disease, including lung infections (parasitic, fungal, viral and bacterial)
Sensory loss—progressive or acute—vision, hearing, smell, whisker
Social, environmental, and emotional differentials
Attention-seeking or resource-seeking (inadequate attention or resources)
Acute frustration—inability to access desired resources
Chronic frustration—inability to perform species-specific behaviours
Socioenvironmental stress—change in environment, diet, owner routine; conflict with other cats; traumatic event; owner conflict
Generalized anxiety
Separation anxiety
Sound sensitivity
Grief—loss of a bonded cat, other pet, human

BOX 2: Common causes of altered behaviour in aging cats. (Adapted from Miele et al., 2020. See references.)

Dietary supplements	
S-adenosyl-l-methionine (SAMe)	Improved cognitive function in elderly cats, best given early in FCDS.
Antioxidant supplements	Either not trialled in cats or contain ingredients toxic to cats.
Melatonin, plug-pheromones, suntheanine, milk protein hydrolysate (Zylkene), essential oils, amino acid/herbal combinations	May help with sleep-wake cycles and reducing anxiety. Check ingredients for toxicity.
Commercial diets containing fish oils, antioxidants, arginine, B-vitamins, and other supplements such as l-tryptophan, milk protein hydrolysate, chondroprotectants	No specific diet designed for FCDS in cats, consider any supplemented mature cat formulation that the cat likes to eat.
Drugs	
Selegiline	All studies in dogs, off-label use with anecdotal positive effects.
Propentofylline	All studies in dogs, off-label use with anecdotal positive effects.
Antidepressants and anxiolytics—fluoxetine, trazodone, gabapentin, benzodiazepines, buspirone	Check drug interactions and contraindications. Have been used to treat clinical signs of FCDS in cats. Be prepared to discontinue, as sedative effects and other side effects may be undesirable.
Donepezil	Not tested in cats.
Telmisartan	Seems to benefit rats, study in cats in progress.

BOX 3: Non-environmental interventions for feline cognitive dysfunction syndrome. (Summarized and adapted from Sordo and Gunn-Moore, 2020. See references.)

FURTHER READING

- <https://icatcare.org/advice/senility-dementia-or-cognitive-dysfunction-syndrome>
- <https://icatcare.org/advice/elderly-cats-special-considerations>

To save space, the references for this article are made available on the Chapter's website at www.canadianveterinarians.net/sbcv/west-coast-veterinarian-magazine. WCV

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“CONSTRUCTIVE DISMISSAL HAS THE POTENTIAL TO ATTRACT SIGNIFICANT LIABILITY FOR EMPLOYERS.”

nor implied, to suspend the employee. The employer also failed to provide any reasons for the suspension, and the suspension was for an indefinite period. The Supreme Court of Canada also found that the second step of the test was met as it was reasonable for the employee to view the unauthorized unilateral suspension as a substantial change to the employment contract that amounted to the belief that the employer no longer intended to be bound by the terms of the contract. This was heightened by the fact that the employee was indefinitely suspended and was given no reason for the suspension. The Supreme Court of Canada stated:

[106] I would suggest that in most cases in which a breach of an employment contract results from an unauthorized administrative suspension, a finding that the suspension amounted to a substantial change is inevitable. If the employer is unable to show the suspension to be reasonable and justified, there is little chance, to my mind, that the employer could then turn around and say that a reasonable employee would not have felt that its unreasonable and unjustified acts evinced an intention no longer to be bound by the contract. Any exception to this rule would likely arise only if the unauthorized suspension was of particularly short duration.

In another case,² a company introduced a series of health and safety measures as part of its response to the COVID-19 pandemic. These measures were directed at limiting employee interactions, and they included remote work arrangements and a social distancing policy. The company eventually reopened its offices and introduced a mandatory vaccination policy requiring employees to be vaccinated.

One employee refused to comply with the mandatory vaccination policy, and she was placed on an unpaid leave of absence for three months. The employee resigned before the end of her unpaid three-month leave of absence. She commenced an action against her employer alleging that she was constructively dismissed from her employment.

The British Columbia Supreme Court found that the employee was not constructively dismissed. Rather, the employer's mandatory vaccination policy was a reasonable and lawful response to the COVID-19 pandemic. It found that although the employee was entitled to her personal beliefs about vaccine safety, such beliefs did not override the employer's legitimate health and safety concerns that were the basis for its mandatory vaccination policy. The policy did not force the employee to get vaccinated. It forced a choice between getting vaccinated and continuing to earn an income or choosing not to get vaccinated and losing income. The British Columbia Supreme Court found that a reasonable person in the employee's shoes "would not have felt in all the circumstances that an unpaid leave was a consequence of failing to comply with the [mandatory vaccination policy] was a substantial alteration of an essential term of the employment contract."³ This point was confirmed by the fact that all of the employee's colleagues, except for one person, complied with the mandatory vaccination policy.

KEY TAKEAWAYS AND FINAL THOUGHTS

The above cases demonstrate how courts will assess whether an employee has been constructively dismissed. The determination of whether an employee has been constructively dismissed will depend upon the unique facts of each case. As one of the cases discussed above suggests, employers should be sure to provide reasons for suspension when they plan to suspend employees. While not every change to the terms of an employment contract will amount to constructive dismissal, employers should be careful when making such changes. If you intend to make a change to your employees' terms of employment, and you are unsure of the implications of doing the same, it is best to consult a lawyer to save yourself from potential liability. [WCV](#)

¹ *Potter v. New Brunswick Legal Aid Services Commission*, 2015 SCC 10.

² *Parmar v. Tribe Management Inc.*, 2022 BCSC 1675.

³ *Ibid.*, at paragraph 156.



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THE LOVE OUR OCEANS PROJECT: REDUCING PLASTIC WASTE

BY JOCELYN MARSH, RVT

The Love Our Oceans project began in March 2021, during the height of the COVID-19 pandemic. I had the opportunity to apply to Ocean Wise's Ocean Bridge Ambassador Program, a one-year program for 130 youth across Canada between the ages of 18 and 30 to develop and implement an action project within their local communities. After I had considered various options, my partner suggested that I look at things I was already doing in my life to see if there were any areas that could be improved when it came to sustainability. I decided that I would look at the veterinary clinic. The next day, I spent time looking around the clinic to see what items we used consistently that could become environmental waste. It was then that I saw how many pill vials, plastic needles, and syringes we use every day. I decided to focus my action project on plastic reduction in the veterinary industry, and created a multi-tiered system that would help promote efficiency in the clinic while also promoting sustainable practices.

First up was the pill vial recycling program. We dispense many medications using pill vials, and when they left the clinic, we never saw those vials again. Where did they go? If they were placed in our general recycling, did they actually get recycled? I decided I wanted to improve this system by creating a circular economy where clients could bring back their pet's pill vials to be reused. If their pet had medication refills, we could reuse them, or vials could be thoroughly disinfected in a chlorhexidine solution, cleaned to remove medication residue, and re-used for other medication fills. To encourage clients to participate, I offered a discount on their dispensing fee for each vial brought back. It was a win-win situation for the clinic and client, as clinics would save money on the number of vials they needed to buy, and clients received a discount for bringing their vials back. Since starting the project in my own clinic, I calculate that if all veterinary clinics across Canada used a pill vial recycling program, we could save approximately

340,000 vials per year from being used. I often get asked if there are any regulations against reusing pill vials. Before implementing this program in our clinic, I contacted the CVBC to check if there were any rules against reusing disinfected pill vials. There are currently no regulations against this, and when I researched regulations online within BC pharmacies, I did not find any specific regulations about this either.

Next was implementing a weight-based method for measuring injectable controlled substances. Before transitioning to this method, our clinic completed audits by drawing up medications in a fresh needle and syringe to measure the volume and compare it to our last logged volume. Not only was this incredibly time-consuming, but we were using approximately 800 plastic needles and syringes per year for audits alone. I had heard of using weight-based audit methods in human medicine, and decided to try it in-clinic by using a gram scale to measure the medication bottle before and after drawing up the medication. Although it took some additional effort at first to remember to place the bottle back on the scale after drawing up, during audit days we now save so much

time, since we only need to weigh the bottles. We also no longer need to use any needles or syringes for audits. This is where the large numbers are involved: if all clinics across Canada were to move to a weight-based tracking method, we could save approximately 2.7 million plastic needles and syringes every year. This is huge.

Our industry has the ability to change the lives of so many animals and clients alike, and I would love to see us spearhead sustainability practices. We can show that small changes in day-to-day practices can create big changes to local wildlife and ecosystems. I truly believe it is our responsibility as industry professionals to acknowledge the importance of sustainability and to work to improve our industry with plastic-reduction methods because plastic waste has become a growing concern and affects an array of global ecosystems and species. I believe that our work in this movement will trickle into other industries and workforces. If you are interested in learning more about the Love Our Oceans Project, all information is free to download and available on the website: www.loveouroceansproject.com. [WCV](#)



PHOTOS COURTESY JOCELYN MARSH

ALL CREATURES GREAT AND SMALL: ADVANCING ANIMAL HEALTH IN CANADA THROUGH A NETWORK OF NETWORKS

BY DORIS LEUNG, BSc, MPH, DVM, AND THERESA BURNS, MSc, PhD, DVM

WHAT IS CAHSS?

CAHSS is a distinct division of Animal Health Canada. Animal Health Canada incorporates distinct divisions and projects and brings together industry, federal, provincial, and territorial partners to provide collaborative guidance on a cohesive, functional, and responsive aquatic and terrestrial animal health surveillance system in Canada. CAHSS's mission is to bring together and use data-driven information to demonstrate animal health, minimize impacts of disease, and guide surveillance planning from a national perspective.

CAHSS'S NETWORK OF NETWORKS MODEL

The success of CAHSS is largely credited to its network of networks model, which is built on established animal health groups and partnerships in Canada. CAHSS leverages surveillance partners and members for guidance and leadership, as

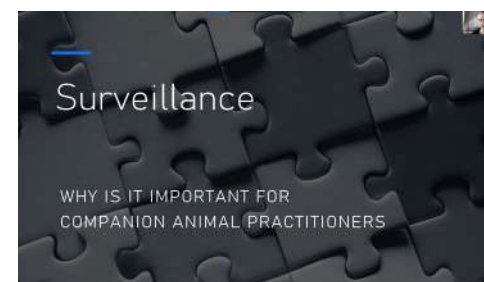


FIGURE 1: Cross-Canada Check-In on Companion Animal Surveillance (video screenshot) with Dr. Tasha Epp as keynote speaker.



FIGURE 2: Poster of national companion animal surveillance webinar, a collaborative effort from CAHSS and WCVM.

well as to share information and best practices for surveillance within its seven species-specific networks (aquatic, beef, companion animal, dairy, equine, poultry, and small ruminant) and two special topics networks (antimicrobial use/resistance and vector-borne disease).

INTRODUCING CAHSS'S COMPANION ANIMAL NETWORK

CAHSS recently launched its newest surveillance network, the Companion Animal Network, in the fall of 2021 and has organized three virtual meetings since its inception. A first-of-its-kind, coordinated surveillance group, the Companion Animal Network comprises well-balanced representation from the Canadian veterinary colleges; federal and provincial/territorial government; regional surveillance networks; industry; public and private diagnostic laboratories; and private practitioners. At each of its network meetings, a roundtable discussion occurs to allow for rapid resource and information sharing among experts in the field from the east to west coast of Canada. Topics and diseases of interest discussed at recent meetings ranged from imported dog diseases (i.e., leishmaniasis), apps such as Firstline that strive to improve antimicrobial stewardship among practitioners, rabbit hemorrhagic disease, to tick surveillance programs across Canada. Current activities of the network include creating a stakeholder map and identifying companion animal surveillance priorities for 2023.

CROSS-CANADA ENGAGEMENT IN COMPANION ANIMAL SURVEILLANCE—WHAT DOES THIS LOOK LIKE?

1. Webinars: “Cross-Canada Check-In on Companion Animal Surveillance” was a webinar held in March 2022 with over 80 participants in attendance (see Figure 2). Dr. Tasha Epp (WCVM) delivered a presentation (see Figure 1) on the importance of companion animal surveillance. A panel of experts from across Canada, including Dr. Hussein Keshwani and Dr. Maureen Anderson, provided updates.
2. Practical resources: In collaboration with the Ontario Animal Health Network, CAHSS consulted with several subject matter experts, including Dr. Alexandre Ellis, Dr. Emilia Wong Gordon, Dr. Maureen Anderson, and Dr. Scott Weese to create an infographic on canine distemper (see Figure 3) in response to the apparent increase in canine distemper cases in Canada (see disease alerts related to canine distemper or other disease alerts in Canada here: cahss.ca/cahss-tools/disease-alerts). This infographic is available in English and French and has been widely circulated among companion animal networks.
3. Podcasts: CAHSS has a series called “Animal Health Insights” (cahss.podbean.com) where host Dr. Kate Todd interviews different guests on topics relevant to animal health in Canada. Episodes of interest for those working with companion animals include “Recognizing Resistant Hookworms” with Dr. John Gilleard, “Importing Dogs, Importing Disease?” with Dr. Christopher Fernandez-Prada, and “Mixing Medicines” with Dr. Jane Parnley and Dr. Martha Fulford. Feel free to download and listen to these episodes, or to listen to other episodes on the podcast series.
4. Membership: SBCV members are encouraged to join CAHSS' Companion Animal Network by visiting the CAHSS website and using CAHSS's tools and resources. If members are interested in learning more about the Companion Animal Network, they can email cahssinfo@animalhealthcanada.ca.

A NEW SURVEILLANCE INITIATIVE IN WESTERN CANADA

The Companion Animal Surveillance Initiative in western Canada has recently launched in an effort to keep track of selected diseases of interest in companion animals (see Figure 4). Cases that you see at your veterinary clinic reflect important changes in companion animal diseases and/or zoonotic diseases—pathogens that haven't been consistently monitored through previous surveillance programs in animal health. It only takes a few minutes to

register on the Western Canadian Animal Health Network (www.wecahn.ca/wecahn-networks/companion-animal-surveillance-initiative) so you can access the Companion Animal Surveillance Initiative's secure website where you can access the links to the short surveys (about five minutes) and other resources. We have provided a template of the data we are requesting, so that your clinic can record the information over three-month intervals and a staff member can fill out the online surveys at the end of those reporting periods. This initiative will provide vital baseline information for the veterinary profession, such as whether diseases are occurring or increasing in frequency in your region for which you need to initiate new prevention measures. As well, recognizing the occurrences of specific zoonotic diseases in companion animals will contribute to public health regionally.

READ MORE

1. CAHSS website: <http://cahss.ca>
2. SAVI Firstline app: <https://savi.canadianveterinarians.net/en/firstline>
3. Must know facts about canine distemper infographic: <https://cahss.ca/cahss-tools/document-library/must-know-facts-about-canine-distemper-cd>
4. Companion Animal Surveillance Initiative website: <https://wcvm.usask.ca/the-college/centres/companion-animal-surveillance-initiative-for-western-canada.php> **WCV**

ALL IMAGES COURTESY CAHSS



FIGURE 3: Canine distemper infographic created by the Canadian Animal Health Surveillance System (CAHSS), the Ontario Animal Health Network (OAHN), and several subject matter experts.



FIGURE 4: Poster to promote the Canadian Companion Animal Surveillance Initiative.



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REDUCING THE RISK OF EXPOSURE TO ANTINEOPLASTIC DRUGS IN VETERINARY CLINICS AND HOSPITALS BY BEI SUN, MSc, CIH, CRSP

In 2016, 3,500 veterinarians and 2,800 veterinary technicians were estimated to have been exposed that year to antineoplastic drugs at work. Veterinarians and veterinary technicians were fifth and sixth, respectively, on the list of occupations with the greatest number of exposed workers in Canada.

In 2021 and 2022, WorkSafeBC conducted a series of inspections in both general and oncology-specialty veterinary clinics and hospitals. The inspections discovered that workers were at higher risk of exposure in general veterinary clinics and hospitals that occasionally provided chemotherapy treatment. These workplaces were not always equipped with adequate equipment (such as a biological safety cabinet for drug preparation), and they were less aware of the hazards of antineoplastic drugs and the suitable controls to reduce the risk of worker exposure.

Antineoplastic drugs are used to treat cancer, and because they can alter cellular functions even at low dosages, workers who work with or near antineoplastic drugs are at risk of adverse health effects. Health effects can be acute or chronic. Acute effects include nausea, dizziness, rashes, gastrointestinal problems, and hair loss. Chronic effects include cancers and negative reproductive outcomes, such as infertility, miscarriage, and birth defects. There is no safe exposure level for antineoplastic drugs. Employers must keep workers' exposure to antineoplastic drugs as low as reasonably achievable (ALARA).

HOW DO EXPOSURES OCCUR?

Workers may be exposed to antineoplastic drugs directly while handling these drugs, or indirectly via contact with contaminated surfaces and objects in the workplace. Exposure can be through inhalation, absorption through skin or mucous membranes, ingestion, or injection from a needlestick injury.

Examples of exposure events could be:

- Handling incoming shipments of antineoplastic drugs that have surface contamination on vials or packaging materials
- Preparing and mixing antineoplastic drugs (e.g., crushing pills, drug reconstitution), and priming administration equipment, which may result in spills or release antineoplastic drug particulates or vapours into the air
- Administering drugs, which may result in spills or needlestick injuries
- Handling wastes of treated animals (e.g., blood, vomit, stool, urine, sweat) or their contaminated bedding, cages, and kennels, since antineoplastic drugs can be excreted for 72 hours or more following chemotherapy treatment

WHO IS AT RISK?

A variety of workers in a veterinary setting may be at risk. In addition to veterinarians, veterinary technicians, and assistants, other staff who may be at risk include:

- Pharmacists who handle veterinary antineoplastic drugs
- Other supporting staff working in veterinary clinics or hospitals
- Cleaning staff and laundry workers
- Hazardous drug disposal and waste removal contractors

HOW CAN EMPLOYERS REDUCE THE RISK OF EXPOSURES?

To reduce the risk of exposure in the workplace, employers and staff should work together to follow the steps described below.

Step 1: Understand the risks

Identify the hazards by determining what antineoplastic drugs are present at the workplace and where they are stored and handled. Next, conduct a thorough risk assessment for both routine work activities and emergency work activities (such as spill cleanup) involving antineoplastic drugs to determine how exposure may occur and who may be at risk of exposure.

Step 2: Implement measures to control the risks

After a risk assessment is completed, employers should select and implement effective controls, based on the hierarchy of controls (see sidebar).

Step 3: Communicate with workers and others at the workplace

Make sure workers are trained on the hazards of antineoplastic drugs, associated adverse health effects from exposure, and controls implemented to reduce risk of exposure.

Step 4: Regularly monitor and update your control measures

Managing workplace risks is an ongoing, cyclical process for employers to monitor how effectively they are reducing the risk of exposures in their workplaces. It's important that employers repeat the previous three steps whenever there are changes or when control measures are not working as intended.

When evaluating your control measures, consider questions such as: Is the list of antineoplastic drugs in your workplace accurate and current? Are you aware of all the surfaces and items that may potentially be contaminated with antineoplastic drugs? Are workers following safe work procedures?

ADDITIONAL INFORMATION AND RESOURCES

If you have any health and safety questions or would like information and assistance with health and safety issues in the workplace, call the WorkSafeBC Prevention Information Line at 604.276.3100 (lower mainland) or toll-free at 1.888.621.7233 (Canada) or visit worksafebc.com.

WHAT DOES THE HIERARCHY OF CONTROLS LOOK LIKE IN A VETERINARY CLINIC?

The hierarchy of controls is a widely used approach to reducing workplace hazards. It ranks risk management strategies from most to least effective so that workplaces can prioritize appropriately.

1. Elimination controls

- Refer patients to specialty oncology hospitals, if your workplace is not equipped to handle antineoplastic drugs safely
- Remove unneeded antineoplastic drugs from the workplace
- Have drugs prepared and primed by a pharmacy and delivered in a form that is ready to administer

2. Substitution controls

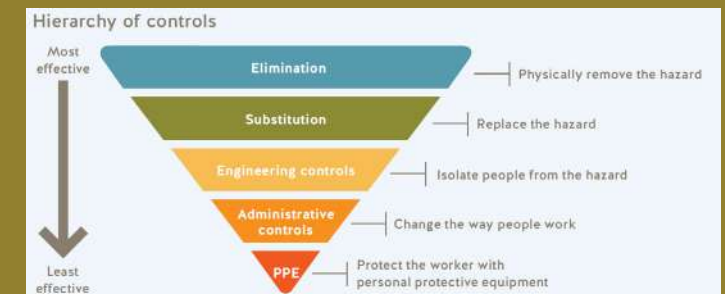
- If clinically appropriate, use a form of antineoplastic drug that has a lower risk of exposure to workers, such as coated tablets instead of IV infusions

3. Engineering controls

- Install and use biological safety cabinets (class II type B or greater)
- Use a closed-system drug-transfer device

4. Administrative controls

- Develop safe operating procedures
- Provide worker training and maintain drug-handling records for each worker
- Identify animals who have received hazardous drugs (e.g., place signs on cages or kennels)
- Post warning signs in areas where antineoplastic drugs are present
- Maintain a list of all antineoplastic drugs present in the workplace



5. Personal protective equipment

- Provide workers with protective equipment—such as chemotherapy-tested gloves and gowns, approved fit-tested respirators, eye and face protection, footwear, and shoe covers—and make sure they wear them as specified in your workplace's safe work procedures

To save space, the additional information and resources for this article are made available on the Chapter's website at www.canadianveterinarians.net/sbcu/west-coast-veterinarian-magazine.

IS THIS ARMAGEDDON OR CAN I RELAX?

Earlier this month, an acquaintance asked me about all the market volatility we've seen this summer. He wanted to know if he should stay relaxed...or if this was the beginning of a financial crisis. After all, he pointed out, inflation has skyrocketed this year. Interest rates are on the rise, and the media is constantly talking about the possibility of a recession.

How can an investor stay calm in these turbulent times?

In response, I asked him if he remembered early 2020. Who could forget? COVID-19 spread across the planet like wildfire. Stocks plunged into one of the fastest bear markets in history. At one point, oil prices were actually below zero! So many things happened in so short a time, it seemed like financial Armageddon.

But it wasn't.

By the end of spring, the markets had largely recovered – and investors who kept their heads, stayed calm, and held to their long-term strategies got in on the ground floor of an incredible bull market.

It's true that there is a lot of uncertainty in the markets right now. Inflation hit 8.1% in June. In response, the Bank of Canada raised interest rates by 100 basis points, the largest single rate hike since 1998. And with so many Canadians in debt and home prices plunging, it's hard to feel confident about what the future holds.

As uncomfortable as this is, though, none of it is new. The events we're seeing are important, and they unquestionably have an effect on how regular Canadians like you and me live our daily lives. But as long-term investors – which we are – periods of market volatility and economic uncertainty are just sequels to movies we've already seen before. And just as in early 2020, investors who stay patient and relaxed will benefit in the long-run.



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"I would highly recommend the services of Dr. Elizabeth Bellavance for those wishing to sell their veterinary practice. She managed to negotiate a deal that went well beyond our expectations. The financial windfall certainly justified the cost of her services. Her expertise and negotiating skills were indispensable for such a deal to occur...one far more favourable than what we could have achieved on our own."

Dr. B

"Having gone through a process of purchasing and selling a hospital with a professional (who is also a veterinarian!), we can only highly recommend this to anybody who is thinking about either. It will be money well spent. Negotiations between the sellers initially, and the purchasers subsequently, of the hospital, in the end were left to Elizabeth. Not only was this less stressful for us and a great time saver, it also vastly improved the outcome of the negotiations. Elizabeth was extremely diligent and detail oriented and worked very hard on our behalf."

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¹Logan EI, Finney O, Hefferren JJ. Effects of a dental food on plaque accumulation and gingival health in dogs. *J Vet Dent.* 2002;19(1):15-18. ©2022 Hill's Pet Nutrition Canada, Inc.