

WEST COAST VETERINARIAN

MARCH 2014 | N°14



NEUROLOGY
FROM CONSULTATION
TO SURGERY

**ANTIMICROBIAL
USAGE TRENDS**

WHAT IF?
ADVANCEMENTS
IN TELECYTOLOGY

**CURRICULUM
CHANGES**
AT THE WCV

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from the editor



COREY VAN'T HAAFF
EDITOR

» TO THE EDITOR

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

I was thrilled to read Kailee's Student Corner about the addition of new elective rotations to the WCVM curriculum, and the start of a DVM-MBA dual degree program.

Our animals and pets are playing a larger, highly visible role in our lives. The public is becoming more concerned and vocal about food animal welfare issues and is taking to social media, along with some celebrity support, to share their concerns with retailers, with the goal of improving the treatment of animals. Add to this not only our desire for our pets to live long and happy lives but also the availability of tremendous medical intervention (just see Nick Sharp's Specialist Corner piece on neurology if you doubt this at all) to make their lives longer and happier.

It follows naturally that to accomplish these goals, veterinarians need to be widely educated not just in medical intervention and advancements, but also in communication with clients. And, because you can't have a healthy veterinary practice without being a healthy veterinarian, the inclusion of work-life balance issues at the college level make perfect sense.

It's a trend that I see throughout this issue. Pet nutrition, for instance, depends in large part on effectively questioning and communicating with clients. The better prepared our grads are to advance this level of communication, the more vibrant the profession.

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CVMA-SBCV CHAPTER
FALL CONFERENCE
WITH THE ANIMAL HEALTH TECHNOLOGISTS ASSOCIATION OF BC
NOVEMBER 8-9, 2014
RIVER ROCK CASINO RESORT, RICHMOND, BC

The CVMA-SBCV Chapter and the Continuing Education Committee, along with the AHTA of BC, are pleased to announce the date and location of the Fall Conference. Please mark your calendars now and save the date. More details to follow.

WCV CONTRIBUTORS



PAT FOURNIER, CA, is the founder of JPS Financial and Accounting Services. As a BC Chartered Accountant and WA Certified Public Accountant, she gained experience from both sides of the border before choosing to set up her public accounting office in British Columbia. She gives tax seminars to US citizens and works with small to medium-sized businesses and individuals.



CARMENCITA LAKE, MPH, DVM, BSc. Agr., is the director of Carmen Lake & Associates, a company focusing on educating and engaging professionals and the public on topics of human-animal public health significance including infection control and antimicrobial stewardship.



NORM LOWES, DVM, MVSc, is a graduate of WCV with two veterinary degrees: one in medicine and surgery and the second in veterinary clinical pathology. He has spent his career in veterinary medicine doing both general practice work as well as diagnostic pathology in several diagnostic laboratories in Western Canada and England.



MARLIE ODEN has been in the communications business for more than 30 years. She is the founding partner of Bridge Communications and loves helping her clients almost as much as she loves her Terrier cross Buddy. Buddy can often be found entertaining everyone at Bridge.



KAILEE PRICE is a WCV student from Surrey, BC, and the CVMA-SBCV Chapter's first student liaison. Kailee communicates the Chapter's vision and current news and events to our BC veterinary students at WCV, and she also distributes our magazine to the students.



NICK SHARP, DVM, is horrified to admit that he has been graduated for almost 35 years now! He is board-certified in Neurology and Surgery and is one of the three partners of Canada West Veterinary Specialists where he works on the Neurology team alongside board-eligible neurologist Mike Higgins.



ADRONIE VERBRUGGHE, DVM, PhD, Dipl ECVCN, graduated as a companion animal veterinarian (DVM) from Ghent University, Belgium in 2005. She received her PhD in 2009 and became board-certified for the European College of Veterinary and Comparative Nutrition in 2010. She is Assistant Professor and Royal Canin Endowed Chair in Canine and Feline Clinical Nutrition at the Ontario Veterinary College.

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MARCH 2014

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NUTRITIONAL ASSESSMENT EVERY PET, EVERY CONSULT



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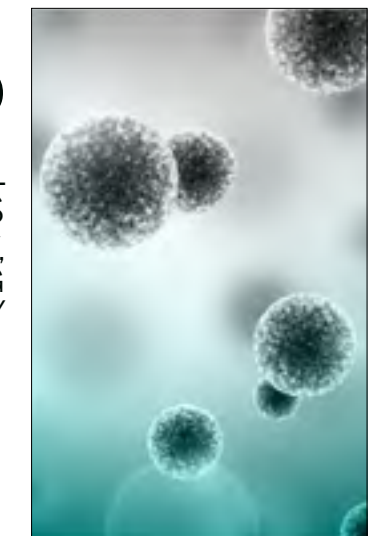
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NEUROLOGY, FROM
CONSULTATION TO
SURGERY



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ANTIMICROBIAL
USAGE TRENDS
ACTING LOCALLY,
INFLUENCING
GLOBALLY



march



BY JIM BERRY, DVM

Antimicrobial stewardship has been established as a strategic priority for the CVMA in 2014, with a number of initiatives planned to boost awareness of this vitally important issue. This spring, the CVMA will release a smartphone app to assist veterinarians with the prudent use of antimicrobials when treating UTIs in companion animals and a new Active Pharmaceutical Ingredients position statement. We're extending an open invitation to all CVMA Convention delegates to attend *Antimicrobial Stewardship: A New World Order*, the 2014 Summit of Veterinary Leaders, where the issue of antimicrobial resistance will be closely examined by Canadian and international speakers from the veterinary and human health professions on July 9. Our Animal Health Week campaign in October will also follow the theme of antimicrobial stewardship.

The CVMA is currently advocating on behalf of veterinarians who practice aquatic medicine on two issues: one involving new regulations being proposed by Fisheries and Oceans Canada; and the other involving regulations associated with the use of a product that has been temporarily approved by Health Canada's Pest Management Regulatory Agency. You can learn more about these issues in the January edition of the CVMA's eNewsletter.

During our recent communications audit, the CVMA worked with a communications relations firm to survey members, non-members, student veterinarians, and industry executives to find out if our current communications program is meeting the needs of the profession. Given the recommendations made by the communications firm, in 2014, our website will be further refined, the volume of information shared via social media channels will increase, and our eNewsletter will be redesigned.

Canada's new federal anti-spam legislation comes into force on July 1, 2014. Now is the time to consider how your practice will implement the changes that may be required in order to meet the regulations associated with this incoming legislation. The CVMA's

series of CASL information bulletins, available in the *News & Events* section of our website (www.canadianveterinarians.net), can help you to understand the impact of this new law and to begin planning for compliance.

The CVMA's Environmental Advisory Group recently released the new CVMA Green Veterinary Practice initiative, a collection of eco-friendly resources for veterinary practices. It is our obligation as veterinarians to minimize the detrimental impact of veterinary medicine on our environment, and we can all play a part. Visit the Resources section of our website (www.canadianveterinarians.net) and discover how to improve the environmental impact of your veterinary practice.

We invite you to join us in July for the 2014 CVMA Convention in St. John's, Newfoundland and Labrador, where we'll be waiting to welcome you to Canada's East Coast with true Newfoundland hospitality. We're offering a thought-provoking convention with top-notch speakers, and social and networking opportunities. You can earn up to twenty-five CE hours in just four days, efficiently updating your professional credentials.

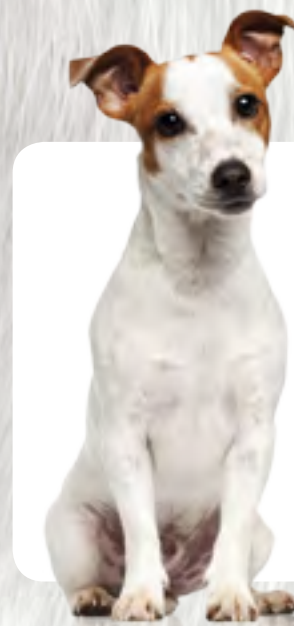
We welcome your comments and inquiries at the CVMA office. Please contact us by email, admin@cvma-acmv.org, or by telephone, 1-800-567-2862. Your feedback is extremely valuable to us.



Jim Berry, DVM, holds a Bachelor and Masters in Biology and a DVM from the Ontario Veterinary College. Co-owner of Douglas Animal Hospital, a full service hospital for family pets in Fredericton, New Brunswick, Jim has a special interest in rehabilitation, pain control, and orthopedics. He is Canada's representative for the World Small Animal Veterinary Association and a past-president of the New Brunswick Veterinary Medical Association. He lives in the country with his wife, daughter, and three dogs. In his spare time, he enjoys canoeing, cycling, skiing, and running.



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cvma-sbcv chapter president's report



BY MARCO VEENIS, DVM

As part of its commitment to be relevant and transparent, the Board did some strategic planning before the Fall Conference in November, and I am sharing the results with you and asking for feedback. We want to be sure that *who we are* and *what we do* remain relevant and useful to our members. Once we hear back from you, we will review your comments and revisit our governing documents to ensure they match.

Our core values—those ideals that govern our decision-making—were updated as follows: Integrity, Excellence, Transparency, and Helpfulness.

We developed three overall objectives, in order of importance:

1. Provision of Services to Members

CVMA-SBCV Chapter advocates for the best interests of its members and maintains effective and regular communication with them. The Chapter keeps members up-to-date by providing continuing education courses and opportunities, and looks for new and meaningful ways to connect members with the public.

2. Promotion of the Veterinary Profession

CVMA-SBCV Chapter promotes the integrity and honour of the profession to the public through public education and information. The Chapter develops effective working relationships with all stakeholders.

3. Promotion of Human and Animal Welfare

CVMA-SBCV Chapter promotes animal welfare

issues including public safety and food safety issues. The Chapter shares CVMA animal welfare position statements and research with veterinarians and the public, and promotes, encourages and nurtures the development of the human-animal bond.

We welcome your comments on these objectives and on our core values. Your feedback is important to us. Email us at CVMA-SBCV@cvma-acmv.org.

Also at our successful Fall Conference, we heard from some of you about both the timing and the location of the conference. The CE Committee sent out a survey, and 87 of you responded. The committee is studying those responses and suggestions now at the start of our planning for 2014. Expect to hear more soon.



Marco Veenis, DVM, graduated with distinction from Utrecht University in the Netherlands and practiced in Holland for nine years before moving to Canada in 1998. For the past 10 years he has raised his family and run a successful small animal clinic in Kelowna. Marco enjoys the daily challenges that practice presents him with and is proud to be a member of BC's veterinary community. As an immigrant and newly minted Canadian, he is grateful for the opportunities Canada has offered him and likes to give back to his community by volunteering his time for organizations like the CVMA-SBCV Chapter.



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¹Mehlhorn H. (2000). Mode of action of imidacloprid and comparison with other insecticides (i.e., fipronil and selamectin) during *in vivo* and *in vitro* experiments. *Suppl Compend Contin Educ Pract Vet.* 22(4A): 4-8.
²Mehlhorn H, Mencke N, Hansen O. (1999). Effects of imidacloprid on adult and larval stages of the flea *Ctenocephalides felis* after *in vivo* and *in vitro* application: a light and electron-microscopy study. *Parasitol Res.* 85(8-9): 625-637.

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CURRICULUM CHANGES AT THE WCV

EVOLUTION OF ELECTIVES, NEW ROTATIONS, AND A DVM-MBA DUAL DEGREE

BY KAILEE PRICE

After two and a half years of sitting in a room with the same 80 people, I'm seeing quite the change at the start of the second semester of third year with everyone running off to attend their various electives. I thought that the WCV curriculum had been like this for a long time, but after a little digging, I was surprised to find out that my class is only the fourth to be given the opportunity to take electives in third year.

Up until the second semester of third year, everyone takes exactly the same core courses. From January to April, we now take sixteen credits of electives and seven credits of core. Each elective course is one or two credits. What started as approximately 30 different electives in 2010 has now expanded to about 40 different elective options offered this year—an impressive number! Students can choose from a wide array of topics including Animal Welfare, Communications, Business, Emerging and Reemerging Diseases, Clinical Procedures in Bovine Practice, Small Animal Clinical Orthopedics, and Mindful Veterinary Practice.

While many of the topics are covered to some degree in core courses, electives allow instructors to teach all the additional material they couldn't fit into their allotted lecture hours, conduct labs that are not practical for large group sizes, and introduce students to topics not covered in the core curriculum. Some electives are taken by nearly the entire class, some have limited enrollment, and some are taken by just a few interested students, leading to a unique and personalized learning opportunity. Electives with limited enrollment are drafted, leading to interesting results, such as the Fish elective. This elective was oversubscribed, with multiple interested students ending up without a place at the end of the draft.

The fourth year of the DVM program consists of approximately 50 per cent core rotations and 50 per cent elective rotations. Five years ago, there were forty different rotations being offered, but the students in the Class of 2014 were able to select from over sixty different options. Much of the expansion has been in external rotations taking place outside the WCV in other provinces. These allow for many unique learning opportunities in different environments. Wellness and Preventative Medicine is the newest rotation based at the Western College of

Veterinary Medicine, first offered last year. It allows students to learn about the controversies surrounding wellness and preventative veterinary medicine, improve client communications, and gain knowledge in small animal nutrition issues.

Finally, a major change occurred this year: the start of a DVM-MBA dual degree program. This year, three students will be chosen from interested students in the third- or fourth-year classes to participate in the program. They will complete a one-year MBA through the Edwards School of Business starting this summer, immediately after completion of the third or fourth year of the DVM program. The students selected from the third-year class will return to finish their fourth-year DVM rotations the following year.

All in all, there have been plenty of exciting additions to the curriculum at the WCV recently, leading to many choices and opportunities in the final years of the DVM program. [WCV](#)

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“THERE IS NO DOUBT THAT SOME NEUROLOGY PATIENTS DO REQUIRE EXTENSIVE DIAGNOSTICS AND INTERVENTION. MANY, HOWEVER, CAN BE HELPED WITH ONLY DIAGNOSTIC IMAGING OR WITH JUST A NEUROLOGY CONSULTATION”

A neurologist sees animals that have diseases affecting their brains, spinal cords, peripheral nerves, or muscles. Some of these animals require medical management, and some require neurosurgery. A family veterinarian should consider referring an animal to get insight into its diagnosis, its prognosis, and then, of course, the best treatment. Some examples of the type of referrals we see are given in three case examples.

Neurologists try to help veterinarians and their clients in several ways. We are always happy to perform an initial consultation in order to provide the best preliminary analysis as to the probable diagnosis and likely prognosis, and to discuss treatment options with owners based on these estimates. Some clients will choose not to proceed with further diagnostic testing, some will run tests but will not pursue treatment, and some will pursue diagnostic testing as well as the ideal treatment option.

Once a case is referred, the animal is examined, and then we seek to make a preliminary referral communication with the family veterinarian within 24 hours by fax, email, or telephone; followed by a completed referral letter within a few days. If the animal is hospitalized, a referral update is sent daily to the veterinarian as well as a discharge summary, including the homecare notes given to the owners.

There is no doubt that some neurology patients do require extensive diagnostics and intervention. Many, however, can be helped with only diagnostic imaging or with just a neurology consultation. Our primary aim, however, is always to try and help the animal to the best of our ability within any limitations set by the owner.

BY NICK SHARP, DVM

NEUROLOGY

FROM CONSULTATION TO SURGERY

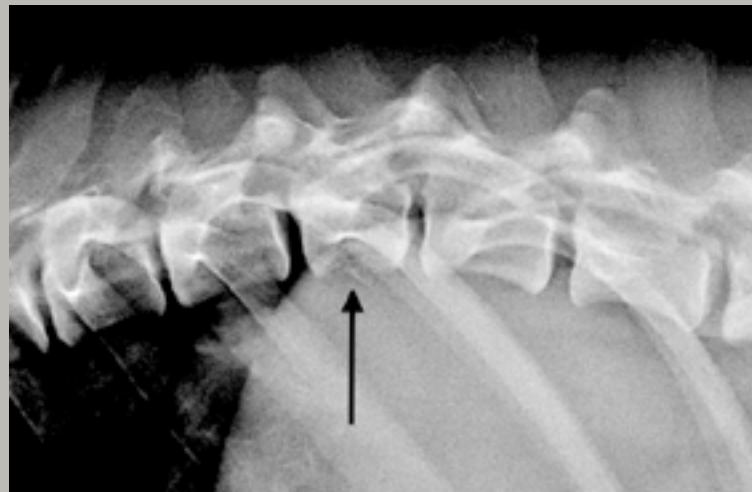


FIG. 1



FIG. 2

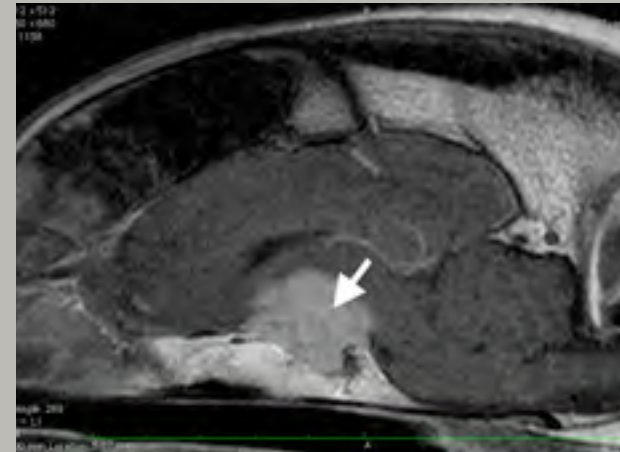


FIG. 3

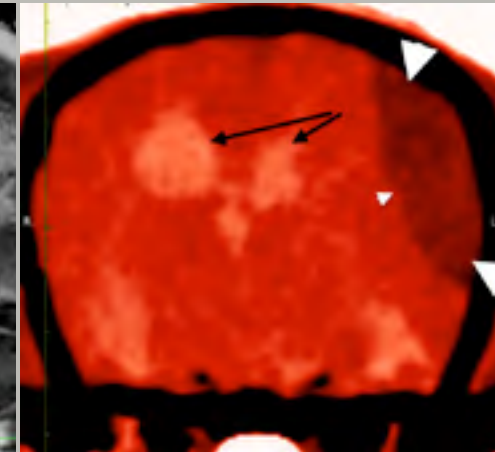


FIG. 4

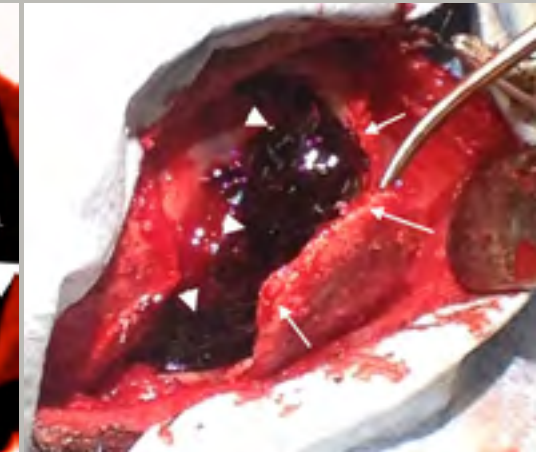


FIG. 5

FIG. 1 A compression fracture has shortened the T12-vertebra (arrow). **FIG. 2** Riley in his custom-made external splint. **FIG. 3** Seager's MRI shows a large, contrast-enhancing meningioma in his forebrain near the pituitary gland (arrow). **FIG. 4** CT scan (colorized) to show a large epidural hematoma (white arrowheads). Note the ventricular asymmetry and the brain shift towards the right side (back arrows). **FIG. 5** Large epidural hematoma at surgery (arrowheads); the bone flap is shown by the arrows.

TABLE 1 PRINCIPLES OF EXTERNAL SPLINTING*

- ▶ Provides much more stability than cage confinement
- ▶ Inexpensive compared to surgery
- ▶ Most applicable for mid-thoracic to mid-lumbar fractures
- ▶ Requires a high degree of nursing care
- ▶ Risk of neurologic deterioration
- ▶ Some animals tolerate splints poorly
- ▶ Not suitable if extensive soft tissue injury is present
- ▶ The vertebral body should be largely intact

* From: Patterson, R.H., Smith, G.K. (1992) *Veterinary and Comparative Orthopaedics and Traumatology* 5, 179–187. Backsplinting for treatment of thoracic and lumbar fracture/luxation in the dog: principles of application and case series.

EXAMINATION (WITH NO ADVANCED IMAGING OR SURGERY)

Examples of cases where the client may not need to pursue further diagnostic testing or invasive treatments are mild disc injuries that can sometimes be managed non-surgically, dropped jaw or mild cases of fibrocartilaginous embolism where the animal can recover on its own, or diseases like myasthenia gravis or epilepsy where the priority is often to just start medical therapy.

Riley, 5 years, male Wire-Haired Pointing Griffon, is a good example of a pet that did not need advanced imaging or surgery to help him. He had been on a walk when he jumped a low wall; what he did not realize was that there was a 50' drop on the other side of this wall. When Riley was found, his rear legs were paralyzed. Fortunately, on referral some 48 hours later, he could still wag his tail and had normal deep pain sensation. His X-rays showed a compression fracture of his T12-vertebra (Fig. 1). We judged this to be a stable fracture because the vertebral body was still largely intact and able to buttress the adjacent vertebrae without collapse or angulation.

Options for Riley were cage confinement, external fixation, or internal fixation. Cage confinement can be successful, but it relies on minimizing stresses to the spine and on paravertebral muscle spasm to keep the fracture stable. External fixation was a better option for Riley because his fracture appeared to be stable on X-ray, which was also consistent with him not deteriorating over 48 hours (see Table 1).

Riley did very well in his splint, other than having some mild rub sores. He made a great recovery and could even cock his leg after two weeks, but he kept his splint on for six weeks in all, by which time he was walking on his own.

EXAMINATION & ADVANCED IMAGING (WITH NO SURGERY)

Some animals are much better served after their consultation by advanced imaging using CT or MRI in order to provide a more accurate diagnosis, prognosis, and treatment options. Examples include animals with marked spinal cord deficits, those whose owners are considering spinal surgery, or those that might have encephalitis or a brain tumor where an accurate diagnosis is an important prerequisite to effective therapy.

Seager, 8 years, male Lab-X, came to us with a six-month history of trouble finding his ball and then seizures for one month. Examination showed him to be obtunded with absent menace responses and reduced PLRs bilaterally. Differentials were a brain tumor or encephalitis. His MRI confirmed a large, inoperable tumor in his forebrain (Fig. 3); aspiration confirmed a meningioma. Radiation therapy was declined, so his owner tried palliative steroids. Within five days, Seager could see well and was nearly back to normal. He did very well for six months, other than some continued seizure activity. This time course fits well with reported survival times for tumors in this area (see Table 2). His owner was very grateful to have this time to say goodbye to a beloved companion.

EXAMINATION, ADVANCED IMAGING, & SURGERY

The most obvious example in this category is the dog with a disc herniation that undergoes a scan and decompressive spinal surgery; other examples include dogs and cats with other types of spinal cord compression such as fractures, tumors, or cysts, and the occasional animal with a brain tumor.

Ralph, 5 years, male Yorkie, suffered head trauma when his owner inadvertently shut his head in the car door; he was fairly normal initially but soon developed anisocoria, depression, and bradycardia. He was stabilized overnight and then presented the next day alert with only a mild head turn. A CT scan of his skull, however, showed a large epidural hematoma (Fig. 4). Surgical decompression was delayed in the hope that this would resolve gradually, and Ralph was managed according to the Human Traumatic Brain Injury Guidelines (Table 3). Unfortunately, he became progressively more dull over the next 12 hours, and so he was taken to surgery where the hematoma was removed (Fig. 5). He quickly returned to normal and has remained stable since then.

These three case studies illustrate that while some neurology patients do require extensive diagnostics and intervention, many can be helped with only diagnostic imaging or with just a neurology consultation. **WCV**

TABLE 2 RESULTS OF PALLIATIVE TREATMENT FOR BRAIN TUMORS*

- ▶ Forebrain: median survival time, 6 months; range: 3 to 9 months
- ▶ Caudal Brainstem/Cerebellum: median survival time, 1 month; up to about 2.5 months

* From: Rossmeisl, J.H. et al. *J Am Vet Med Assoc.* (2013) 242:193–8. Survival time following hospital discharge in dogs with palliatively treated primary brain tumors.

TABLE 3 SUMMARY OF HUMAN BRAIN TRAUMA FOUNDATION GUIDELINES*

- ▶ Blood pressure should be monitored and hypotension (systolic blood pressure < 90 mm Hg) avoided.
- ▶ Mannitol is effective for control of raised intracranial pressure at doses of 0.25 gm/kg to 1 g/kg body weight. Hypertonic saline may benefit brain injured patients while preserving or even improving hemodynamic parameters.
- ▶ Anticonvulsants are indicated to decrease the incidence of early post-traumatic seizures.
- ▶ The use of steroids is not recommended for improving outcome or reducing intracranial pressure.

* From: *Inhospital Severe Traumatic Brain Injury Guidelines*: www.tbguide-lines.org/gjHome.aspx?gl=1 ©2010 Brain Trauma Foundation

WHAT IF?

ADVANCEMENTS IN TELECYTOLOGY

BY NORMAN LOWES, DVM, MVSC

A clinical pathologist and surgeon were 50 feet from each other while lymph node and intestinal impression smears were being examined. Tumor cells were found in both tissues. It took a total of 15 minutes to make the diagnosis. This happened some 42 years ago, while I was in graduate school.

But what if the clinical pathologist is 2,000 miles away? In most situations, the clinical pathologist will call the practitioner to discuss the case before the final diagnosis is made.

Fast forward to 2014. With today's technology, smears can be simultaneously examined in the clinic and diagnosed by the clinical pathologist, wherever he or she may be located. The diagnosis of carcinoma is made on a computer screen without the pathologist even touching the glass slides. Real-time cytological diagnoses are a reality now that specialized software can allow remote examination of slides to be done in real time. In addition, images from smears can be received and reports generated in anywhere from a few minutes to less than four hours.

The major outlay for the practitioner is for a single-lens eyepiece camera, which costs between \$200 and \$300. In some cases, new microscopes may be required, but older microscopes generally work

well. The majority of cameras range from three to ten megapixels. Newer software programs can operate the camera, providing a better image.

If gross pictures can be taken, they should be included with microscopic images in the image set. The samples obtained from fluids, FNA, or impression smears are stained, most commonly using a rapid stain or NMB, which is a wet fixative stain. The slides are screened at low power, with selective areas on the slide chosen for examination at higher powers. Images are assessed for preservation of cells, quality of staining, cell numbers, and overall quality of colours.

There is no question that image cytology is on the rise, and with more and more cytology being done in-clinic, a higher number of initial examinations will be double-checked to verify findings. Images never-before seen will rise in practices that do cytology, most of which can be diagnosed by a clinical pathologist. In cases where a definitive diagnosis cannot be made, tissues should be sent for a histological diagnosis. Cytology/histology correlates thus become the learning tools for future cases.

The widespread use of telecytology is increasing. Like other diagnostic tools, its use will become standard procedure to provide the best service for animal owners and the well-being of their pets. **WCV**

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NUTRITIONAL ASSESSMENT

EVERY PET, EVERY CONSULT

BY ADRONIE VERBRUGGHE,
DVM, PhD, DIPL. ECVCN

As a pet nutritionist, I have seen too many dogs and cats that developed health problems because of inappropriate feeding. Most homemade diets are not complete and balanced unless a recipe formulated by a pet nutritionist is used and the owner is devoted and precise when preparing the pet's food. For example, a homemade diet that is too low in calcium and/or Vitamin D may cause rubber jaw and bone demineralization. Too much calcium and/or vitamin D in the diet of large and giant breed puppies may put them at risk for orthopedic problems such as hip dysplasia and osteochondrosis. Many pet owners are also unaware that human foods such as grapes, garlic, and chocolate may cause serious disease in cats and dogs.

“NUTRITIONAL GUIDELINES ARE SURELY TO THE BENEFIT OF OUR BELOVED PETS”

Pet owners should also be made aware that raw diets are seldom complete and balanced and may put their pet and every human being in the pet’s environment at risk for bacterial infections such as Salmonella. Still, it is not only these unconventional diets that can cause problems. In addition, commercial diets may not be appropriate especially as Canadian legislation does not provide any guidelines on the composition of a dog or cat food. Moreover, overfeeding is a huge risk factor for obesity and related health complications such as osteoarthritis, diabetes mellitus, and lower urinary tract disease.

Appropriate feeding not only helps to prevent diet-associated disorders, it also assists in managing diseases such as renal disease, diabetes mellitus, and osteoarthritis. In patients with renal disease, an appropriate renal diet will slow down the disease progression and increase survival time. Patients with diabetes may require lower insulin dosages, and diabetic cats may revert into an insulin-independent state when fed appropriately. And anti-inflammatory drugs may no longer be required when feeding an appropriate joint diet. Hairsplitters may wonder if nutritional assessment is yet another way for pet food companies and veterinarians to sell more pet food. Nothing is less true. The WSAVA nutritional guidelines are surely to the benefit of our beloved pets. The goal is to help the veterinary healthcare team and pet owners ensure that dogs and cats are on an optimal nutrition plan tailored to the needs of the individual dog or cat, to enhance the pet’s quality and quantity of life.

Nutrition has a huge impact on health and disease, especially as nutrition can be either beneficial or detrimental for our pet’s health. By paying attention to nutrition and appropriate feeding throughout all life stages, we can maximize health, performance, longevity, and disease prevention. Furthermore, nutrition is also a cornerstone in the treatment of many diseases. So yes, nutritional assessment in every pet, every visit, is extremely important.

Nutritional assessment is a two-part process consisting of a screening evaluation and an extended nutritional evaluation (Fig. 1).

Screening evaluation is part of routine history taking and physical examination performed on every patient. Information collected should include assessment of factors specific to the animal, the diet, and feeding management and environment. Specific risk factors known to influence nutritional status are listed in Table 1. The presence of one or more of these risk factors raises suspicion for a nutrition-related problem, indicating the need for an extended nutritional evaluation. Based on this screening, in pets that are healthy and without risk factors the

nutritional assessment is complete and no additional extended evaluation is needed.

Extended nutritional evaluation of animal, diet, feeding, and environmental factors is indicated for patients identified to be at risk for any nutrition-related problems from the screening evaluation (Table 1). These factors suggest that nutrition may play an important role in the development of or management of the animal’s underlying disease, or life stage. First, review and summarize the history, medical record, and information obtained during the screening evaluation. Second, obtain additional data as appropriate. Following the nutritional assessment, interpret and analyze the information that has been gathered in order to devise a nutrition action plan.

Nutritional assessment is an iterative process, in which each factor affecting the animal’s nutritional status is assessed and reassessed at every visit.

Animal-specific factors include the pet’s age, physiological status, and activity level. Nutrient-sensitive disorders such as intolerances, allergies, and organ-specific diseases refer to problems related to these animal factors. The diet choice for these patients should be restricted to those formulated to meet the disease-associated nutritional needs of the specific patient.

Diet-specific factors include the safety and appropriateness of the diet. Problems related to diet factors are referred to as diet-induced disorders, such as nutrient imbalances (deficiencies and toxicities), spoilage (e.g., rancidity, moulding), contamination (e.g., Salmonella, mycotoxins), and adulteration (e.g., melamine).

TABLE 1

NUTRITIONAL SCREENING EVALUATION: RISK FACTORS [WSAVA, 2011]	CHECK IF PRESENT
HISTORY	
Altered gastrointestinal function	
Previous or ongoing medical conditions/disease	
Currently receiving medications and/or dietary supplements	
Unconventional diet (raw, homemade, vegetarian, unfamiliar)	
Snacks, treats, table food > 10% of total calories	
Inadequate or inappropriate housing	
PHYSICAL EXAMINATION	
Body condition score: Any score < 4/9 or > 5/9	
Muscle condition score: Mild, moderate, or marked muscle wasting	
Unexplained weight change	
Dental abnormalities or disease	
Poor skin or hair coat	
New medical conditions/disease	

THE GLOBAL NUTRITION COMMITTEE

The Global Nutrition Committee was established in 2010 with the initial task of developing Global Nutrition Guidelines for dogs and cats. These global guidelines, now published in over 15 journals and available on the WSAVA website (www.wsava.org/guidelines/global-nutrition-guidelines), include nutritional assessment as an integral part of the standard physical examination for small animals. Aside from temperature, pulse, respiration, and pain assessment, nutritional assessment is implemented as the fifth vital sign.

The Global Nutrition Committee has developed a nutrition tool kit which includes practical aids for the veterinary healthcare team to make nutritional assessment and recommendations more efficient, such as a diet history form, hospitalized patient feeding guide, body condition score charts, and calorie recommendations for dogs and cats. In addition, educational materials for pet owners have been developed (www.wsava.org/nutrition-toolkit). More useful tools and tips on how to implement nutrition as the fifth vital assessment in your veterinary practice can also be found on the Every Pet Every Time website (www.everypeteverytime.com/nutrition-assessment-support.html) and the Pet Nutrition Alliance website (www.petnutritionalliance.org).

FIG. 1 A screening evaluation is performed on every patient. Based on this screening, pets that are healthy and without risk factors need no additional nutritional assessment. An extended evaluation is performed when one or more nutrition-related risk factors are found or suspected based on the screening evaluation (WSAVA, 2011).



Diet evaluation is surely not an easy task. First of all, a thorough diet history, including all foods, snacks, treats, and other food sources, is necessary.

For commercial pet food produced in the US and/or exported to the US, the AAFCO adequacy statement is extremely important. The statement shows whether the diet is complete and balanced, based on food nutrient profiles (chemical analysis of food), or based on animal feeding tests, and if so, for which life stages. If the food package says “intermittent or supplemental use only,” the food is not complete and balanced, which may only be acceptable for veterinary therapeutic diets used for a specific purpose. But do remember that the AAFCO provides nutrient profiles and regulates pet food labelling for growth, reproduction, and adult maintenance, but not for senior/geriatric pets. Also, remember that for locally produced Canadian foods, no AAFCO statement is required, and the information on the label may be very limited, making it very difficult to know whether the diet is complete and balanced.

How can you find out if a pet food company is reputable? Much has to do with your personal experiences. Table 2 lists eight questions that may be helpful when contacting pet food manufacturers.

In the case of homemade diets, ask the client about the specific recipe, preparation, storage, recipe rotation, or substitution. A quick evaluation is possible based on six questions (Table 3). A board-certified veterinary nutritionist or equivalent can be contacted to evaluate or formulate a homemade diet.

Feeding management factors include the frequency, timing, location, and method of feeding, while **environmental factors** include space and quality of the pet’s surroundings. Feeding-related and environment-related disorders include, but are not limited to, over- or underfeeding, excessive use of treats, poor husbandry, competitive eating, or lack of appropriate environmental stimulation. These situations require effective communication to produce the appropriate behavioral changes in the client. **WCV**

TABLE 2

QUESTIONS FOR THE PET FOOD MANUFACTURER [WSAVA, 2011]

- 1 Do you have a veterinary nutritionist or equivalent on staff in your company? Are they available for consultation or questions?
- 2 Who formulates your foods and what are their credentials?
- 3 Which of your diet(s) are tested using AAFCO feeding trials, and which by nutrient analysis?
- 4 What specific quality control measures do you use to assure the consistency and quality of your product line?
- 5 Where are your foods produced and manufactured? Can this plant be visited?
- 6 Will you provide a complete product nutrient analysis for the dog and cat food of interest, including digestibility values?
- 7 What is the caloric value per gram, can, or cup of your foods?
- 8 What kind of research on your products has been conducted? Are the results published in peer-reviewed journals?

TABLE 3

QUICK HOMEMADE DIET EVALUATION [REMILLARD, 2008]

- 1 **Do five food groups appear in the recipe?** Source of protein, fat, carbohydrate/fibre, minerals, and vitamins.
- 2 **Is the carbohydrate source cooked and present in a higher or equal quantity than the meat source?** Carbohydrate source/protein source ratio: dog: 2/1 to 3/1; cat: 1/1 to 2/1.
- 3 **What is the type and quantity of the primary protein source?** TYPE: Preferably animal origin, or if more than one protein source, one source of animal origin. QUANTITY: dog: 25–30% cooked meat; cat: 35–50%.
- 4 **Is the primary protein source lean or fatty?** When protein source is lean, an additional fat source from animal, vegetable, or fish should be added to ensure adequate energy density and essential fatty acids.
- 5 **Is a source of calcium and other minerals provided?** A specific calcium supplement is required. Bone will not do as a calcium source. Most often no additional phosphorous is needed.
- 6 **Is a source of vitamins and trace minerals provided?** Supplements providing vitamins and micro-minerals are not optional. These nutrient requirements cannot be met using “whole” foods such as fruits and vegetables because the pet simply cannot consume enough vegetable material. Synthetic supplements are needed to ensure a complete diet.



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RETIREMENT PLANNING THE BASICS

BY PAT FOURNIER, CA

“MANY PEOPLE ARE CONCERNED THEY WILL OUTLAST THEIR RETIREMENT FUNDS”

Retirement is inevitable. Whether it is the type of retirement you want depends on the level of planning you have done. A retirement plan involves more than just a savings program. Think of it as a sketch of how you envision living in retirement accompanied by a flexible path of how to get there. Once you have established what you want, you must figure out what you need to do to get it. Taken step by step, it's really not that hard.

Start with your end goal. Most financial planners suggest a necessary retirement income of 60–75 per cent of pre-retirement income in order to live comfortably. I don't recommend you automatically accept this number until you evaluate its application to your particular situation. This means you need to get an idea of how you will be living in retirement, and this will require some serious thought as your whole plan will be built for the particular retirement you envision. Not only do you want to think about how you will be living, but also how will you be transitioning into retirement. Do you plan to sell your practice, move away, or maybe work part-time for a while? Could the part-time working into retirement become part of the sale of the practice? That definitely needs some planning. For instance, are you thinking of a sale to an associate, and if so, do you employ that associate now?

How much will retirement living cost? You need to work out a rough cash flow using your current income and expenses. Look at how you live today and what it costs, and then do a bit of a comparison to how you want to live in retirement.

START WITH THE OBVIOUS

- ▶ Will you be mortgage-free in retirement or will you be selling your home to move elsewhere?
- ▶ What are your operating costs, such as property taxes, utilities, transportation?
- ▶ What are your everyday costs, such as groceries, clothing, entertainment?
- ▶ Which optional extras do you hope for, such as travelling or expensive hobbies?

DON'T FORGET THE LESS OBVIOUS

- ▶ Will you have enough to cover the increase in out-of-pocket medical costs that is inevitable in later years?
- ▶ Will your budget stretch to major house repairs and maintenance such as furnaces and roofs?
- ▶ Will there be a new vehicle to budget for during retirement?
- ▶ What are the potential changes in various insurance policies and premiums?

Pondering the above points should generate some usable expense numbers. Don't worry about trying to calculate the future dollar value

of all this; just get a handle on the types of expenses you think you will have and what they cost today. There are plenty of on-line calculators (most banking sites have various retirement tools) that can take your overall expenses figure and calculate the current savings rate necessary to generate the income you'll need at retirement with an assumed inflation rate.

Don't leave out any possible anticipated income as there may be a few financial options you haven't considered.

START WITH THE OBVIOUS

- ▶ CPP and OAS (for 2013, OAS starts being clawed back after your income exceeds \$70,954)
- ▶ RRSP/RRIF (the maximum contribution for 2014 is \$24,270)
- ▶ Rental income
- ▶ Investment income
- ▶ Sale of a home or practice
- ▶ Part-time work

Be open to investigate all your options. Now that you are actually planning, you may need to tinker with your current level of savings (remember the on-line calculators) to make your plan work.

With the increases in life expectancy and the uncertainty and disappointment in fund returns and fees, many people are concerned they will outlast their retirement funds. To answer this concern, investigate what available annuities will guarantee you a monthly/quarterly/annual payment for life. For practice owners, your practice is usually your largest investment, and the sale of this investment could be a significant part of your financial plan. Is the practice incorporated? Incorporation offers the owner liability protection, a potentially lower corporate tax rate, and use of the \$750K lifetime capital gains exemption when the practice is sold. Preparation for a sale needs to start a few years ahead: get a valuation, and do what needs to be done to get revenues up and expenses down.

Whatever your current situation, the main point is to give your retirement years some thought and start your plan now. No one ever regrets planning. The hardest part is getting started. [WCV](#)



ANTIMICROBIALS, a broad group of substances that are naturally produced by microorganisms or are chemically manufactured, inactivate or prevent the multiplication of a variety of microorganisms. Antibiotics are produced by some species of microorganisms to selectively eliminate or inhibit the growth of target bacteria with minimal harm to the host species. Individual antibiotics are grouped based on their spectrum of activity (narrow versus broad), their similarities in structure (e.g., β -lactams) or function (e.g., bacteriocidal versus bacteriostatic), or their implications on the development of resistance in human medicine (Categories I to IV).

ANTIBIOTICS are traditionally used in veterinary medicine primarily for disease treatment, control, prevention, prophylaxis, and as growth promotants in food animal medicine. Prescription or over-the-counter antimicrobials are available from veterinary pharmacies, online animal product supply companies, feed manufacturers, agricultural supply stores, and pet stores, and through importation from foreign retailers under the own-use importation (OUI) and active pharmaceutical ingredients (API) clauses in Canadian legislation. The sale and distribution of pharmaceuticals in Canada is provincially controlled, while Health Canada regulates drug safety, efficacy evaluation, and labelling.

ANTIMICROBIAL USAGE TRENDS

ACTING LOCALLY, INFLUENCING GLOBALLY

BY CARMENCITA LAKE, DVM

In 2013, a study was conducted to determine the factors that influence antibiotic utilization and resistance in canine and feline veterinary practice in Vancouver. Preliminary results reveal that commonly used veterinary antimicrobials are easily acquired in BC, and most are dispensed through veterinary pharmacies. Sometimes, more convenient drug formulations, appropriate strengths, or package sizes are available at human pharmacies. Off-label use was relatively common.

Whether at a hospital, outpatient, stable, or farm site, antibiotic usage considerations include disease entity, species pharmacodynamics, food withdrawals, class use restrictions, availability of drugs, cost, and veterinary preferences. Overall, in food animal production in BC, antimicrobial usage is on the decline. Consumption in non-food animal practice is not quantified.

Unfortunately, over the past 20 to 30 years, antimicrobial development globally has dwindled. Because of the cost, time commitment, licensing and production requirement regulations, regulations influencing species usage, and a public clamoring for reduced antibiotic usage in food production, the pharmaceutical companies are focusing their attention on more financially rewarding products. However, as antibiotic resistance increases, it is to be hoped that antibacterial development projects will seem more lucrative. In the meantime, collective antibiotic conservation is required.

“SUCCESS IN ANTIBIOTIC TREATMENTS HINGES ON THE LEVEL OF THE OWNER’S COMPLIANCE, THE VETERINARIAN’S APPROPRIATE ANTIBIOTIC CHOICE AND USAGE PROTOCOL, AND PATIENT FACTORS”

In equine and food animal practice, skin, soft tissue, GI, and respiratory disease are common ailments requiring antibiotic therapy, and in ruminants, septicemia and mammary and reproductive organ infections are common. In the Vancouver study, skin and soft tissue infections were the syndromes most requiring therapeutic antibiotic treatments.

Trends in treatment choices were noted from the 10 most commonly used antimicrobial classes. Common large animal choices include TMS, tetracyclines, penicillins, and quinolones. Cephalosporins, penicillins, and fluorquinolones were reportedly the most common choices for many small animal syndromes. Ideally, antimicrobial selection should be based on culture and sensitivity (C&S) results, but because of cost, time delay for results, and client reluctance, the majority of practitioners interviewed in Vancouver, like many of their counterparts elsewhere, treat empirically first and do C&S if treatments fail. Unsurprisingly, there are disadvantages to premature antimicrobial use, particularly if it is a sub-therapeutic dose or inappropriate produce choice. Previous research identified treatment failures, using powerful antimicrobials in unwarranted situations, prolonged more severe disease, added complications, and the development of antimicrobial resistant organisms, as well as increasing treatment costs, extending animal suffering, and reducing the opportunity to generate antibiograms useful in guiding optimal antibiotic selection.

Infectious disease transmission and ineffective antimicrobial treatments can cause treatment failures, and antimicrobial resistance. The term antimicrobial resistance denotes those organisms that have the ability to survive in environments containing one or more antimicrobial agents using the standardized Minimum Inhibitory Concentration (MIC) breakpoints. It should be remembered that all host animal microbes (commensals, transitions, and pathogenic) are exposed to systemic antibiotic treatments, and microorganisms that are not eliminated

are potential sources of resistance genes. Similar resistant organisms or identical bacterial genetic elements are being increasingly found in both humans and animals. Some have demonstrated bi-directional transmission between humans and animals. Sources of nosocomial infections and resistant organisms can be staff, animals, equipment and infrastructure, and owners. At this point, the majority of human antimicrobial-resistant cases do not seem to be caused by animals. However, only a few bacteria are required to spread antimicrobial resistance, and since the numbers of resistant cases are increasing in both human and animal populations, we need better quantification and understanding of the factors involved in the transfer of resistant microbes between species.

In the Vancouver study, treatment failures were reported most often in cases of dermatitis, otitis, and UTIs. Culture and sensitivity results, available antibiotics, results from similar case studies, and cytological findings could be invaluable in reviewing such cases and determining best practice treatment protocols. Respondent impressions were that *Staphylococcus spp*, *E.Coli*, and *Pseudomonas spp* were the bacteria most commonly demonstrating resistance.

Optimal benefits of appropriate antibiotic treatments include success at minimal cost with negligible potential for bacterial resistance development. I believe that success in antibiotic treatments hinges on the level of the owner’s compliance, the veterinarian’s appropriate antibiotic choice and usage protocol, and patient factors such as species, age, and health concerns. In my experience, client compliance often reflects client knowledge. Interviewed veterinarians felt that the prudent use of antimicrobial products could decrease antimicrobial resistance. Many were desirous of ongoing education about antimicrobials and their stewardship to ensure they stay abreast with new developments and protocols.

Antimicrobial stewardship is using antibiotics in a responsible and judicious manner. This includes accurate disease identification and determination

“PRUDENT USE OF ANTIMICROBIAL PRODUCTS COULD DECREASE ANTIMICROBIAL RESISTANCE”

and appropriate antimicrobial selection, dose, route, and duration of therapy in accordance with hospital policy and current standardized guidelines. It also includes utilization of infection control protocols and practices to reduce environmental contamination as well as implementing husbandry practices that diminish the need for antibiotic usage.

Many human and animal hospitals have successfully reduced the use of antimicrobials and the incidence of nosocomial infections by developing and introducing written infection-control policies, the use of off-label treatment algorithms, role-modelling hygiene practices, and by ongoing education of practitioners and staff concerning antibiotic use, resistance, and stewardship. Less than a quarter of veterinary practices interviewed in Vancouver had written antibiotic usage, or infection control policies for animals, and/or the physical facility. Such situations present challenges for executing standardized infection control protocols, and opportunities for infectious disease transmission.

Initiatives like the BCCDC’s ‘Do Bugs Need Drugs?’ program are sensitizing the public to the issue of antimicrobial resistance. The Business of Urban Animals survey reports that 45 per cent of Canadian pet owners prefer to consult their veterinarians for pet care information. This provides opportunities for veterinarians to practice antibiotic stewardship and improve client compliance through education.

Recommended forums for education of veterinarians include workshops on pharmacology, recommended usage of antimicrobials, and improving skills in evaluating scientific evidence. Employees of all levels should take advantage of educational opportunities to learn stewardship practices. Workshops designed to develop stewardship plans specifically tailored for individual practices are locally available. As we look to the future, gathering scientific evidence and communicating these findings will continue to serve as a platform for building the shared responsibility of optimizing human and animal health. [WCV](#)



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NOT EVERYONE **LOVES YOU** ALL OF THE TIME

BY MARLIE ODEN

You know that you give your heart and soul to your profession each and every day. Then, just when you start to think that life and work couldn't be any better, that most disconcerting thing happens—the complaint. Someone is very unhappy with a service you or your staff have provided. Someone who contributes to your livelihood is unhappy. Possibly very unhappy, and you need to deal with the complaint immediately—even though the event may have occurred on a weekend or while you are on vacation.

In the past, when someone was unhappy with a product or a service, they would complain in person, or use the telephone. The larger world was not involved in any problem resolution. Rarely, someone would go to the media.

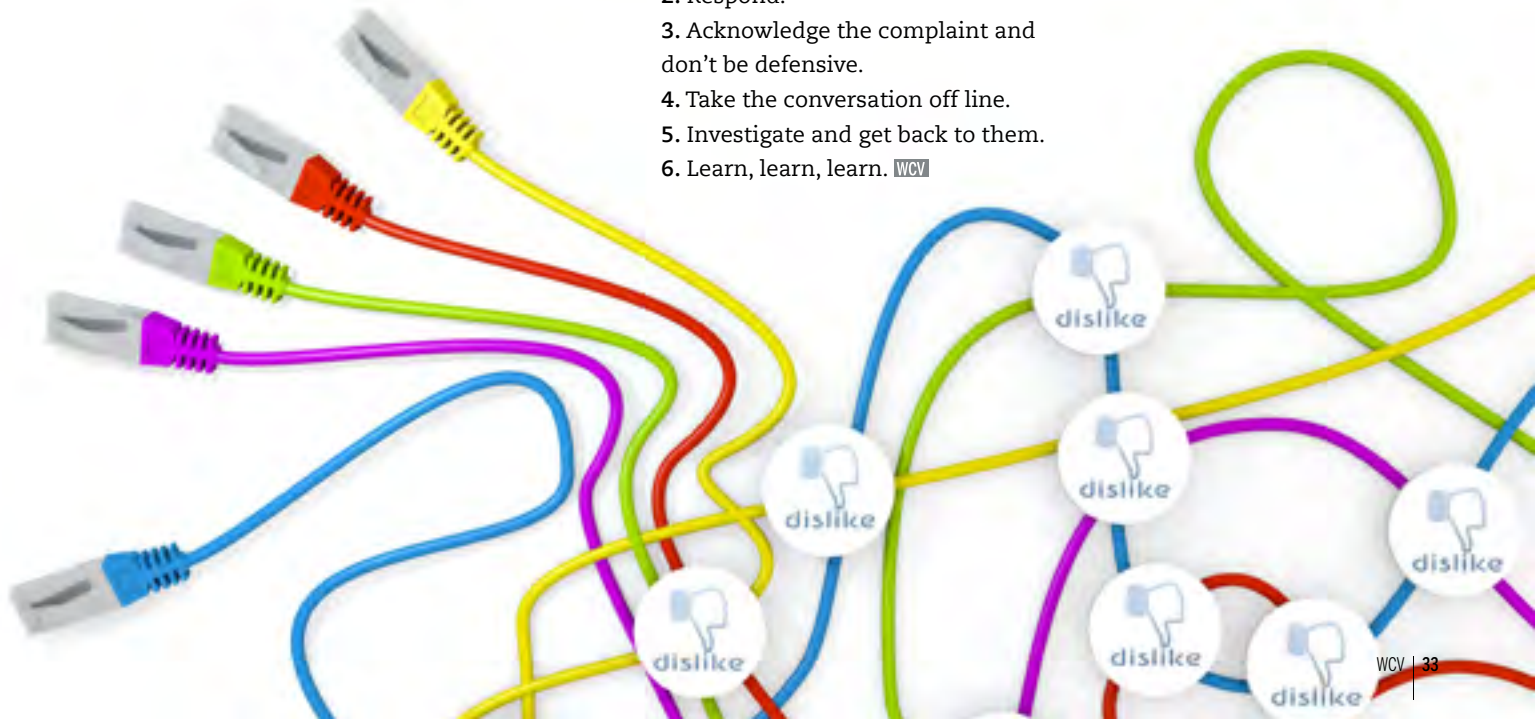
Those days are long gone. Now, it's a whole new world with the web and social media. Often people just take their complaint to the Internet without even contacting the business that they are upset with. That's why it's imperative that you monitor social media sites, make sure you have Google Alerts,

and monitor your Facebook page and Twitter feed regularly. You should also check consumer comment sites for negative reviews.

And if you do find negative comments, criticism, or a complaint on social media? First of all, accept the fact that not everyone will be happy all of the time and treat the complainant as you would like to be treated—with respect. Realize that the Internet has created a culture of quick response, and people expect answers immediately. You need to acknowledge the criticism and promise to look into it immediately. Then take the conversation offline. Ask the complainant if you can speak to them in person or by email and investigate the complaint. Get back to them as quickly as you can using simple, friendly language. Show the client that you truly care about what they think. Very often we will find a learning experience in a complaint.

Years ago, I learned that the customer is always right. At the end of the day, a happy client brings in more business than an unhappy one. So remember these steps:

1. Listen to the complaint.
2. Respond.
3. Acknowledge the complaint and don't be defensive.
4. Take the conversation off line.
5. Investigate and get back to them.
6. Learn, learn, learn. **WCV**



Modern Veterinary Therapeutics, LLC, announces the Canadian launch of the Canine Parvovirus Antigen Test Kit, a rapid in-clinic chromatographic immunoassay test that is already successful in the U.S. market for the qualitative detection of Parvovirus antigens in canine feces.

This test kit has a two-year shelf life, thus solving the current common problem of test expiration in Canadian veterinary clinics. The Canine Parvovirus Antigen Test Kit is highly sensitive and specific, providing a positive or negative result in five minutes to help practitioners recognize the fatal canine disease in the clinic. The kit of five tests is easy to use and can be stored at room temperature.

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Are you a first-year student at WCV? Do you have some skill at writing? Want your own column in *West Coast Veterinarian* magazine?



We are looking for a student liaison to replace Kailee Price as she enters her fourth year and steps away from her student liaison position. If you have a desire to talk to other students about CVMA-SBCV Chapter activities, have a knack for writing about your activities at WCV, and have a few hours available each month, you are the person we are looking for. Please send us an email, telling us a bit about yourself and your availability for this two-year term position (cvma-sbcv@cvma-acmv.org). We can't wait to hear from you. **Deadline: March 31, 2014.**

JULY 9–12, 2014
2014 CVMA CONVENTION
A New Discovery Down Every Lane

The City of Legends, St. John's, Newfoundland and Labrador, awaits you as the destination for the Canadian Veterinary Medical Association's annual convention, presented in partnership with the Canadian Association of Animal Health Technologists and Technicians (CAAHTT).

Experience this unique four-day convention which offers 25 hours of CE and features a strong scientific program, including 34 speakers from Canada and the United States. With sessions focusing on small animal, equine, bovine and ruminant medicine, in addition to animal welfare and business management issues, there is something of interest for everyone. Specialized workshops, including a Level 2 dental lab and an orthopaedic lab, are also available. Find out more about these sessions and more in the 2014 CVMA Convention Preliminary Brochure, online in the Events section of CVMA's website (canadianveterinarians.net).

Online registration for the 2014 CVMA Convention opens in mid-February.

MARCH 23, 2014
WHOLE CAT CONFERENCE
 North Grafton, MA
www.tufts.edu/vet/ce

MARCH 26–27, 2014
2014 LIVESTOCK CARE CONFERENCE
 Edmonton, AB
www.afac.ab.ca

MARCH 28–30, 2014
WILD HORSE ADOPTION CONFERENCE
 North Grafton, MA
www.tufts.edu/vet/ce

APRIL 5, 2014
SIMPLE FRACTURES
 Kitchener, ON
www.focusandflourish.com

APRIL 6, 2014
TUFTS GOES WEST: SOFT TISSUE SURGERY
 Springfield, MA
www.tufts.edu/vet/ce

APRIL 13, 2014
OPHTHALMOLOGY FOR SMALL ANIMAL PRACTITIONERS
 North Grafton, MA
www.tufts.edu/vet/ce

APRIL 25, 2014
REHABILITATION
 Kitchener, ON
www.focusandflourish.com

JUNE 2014
CE AT UNIVERSITY OF CALGARY FACULTY OF VETERINARY MEDICINE
 Basic Small Animal Surgery: June 2–6
 Basic Small Animal Anesthesia: June 9–13
 Small Animal Emergency Procedures: June 19–20
www.vet.ucalgary.ca/node/1488

SEPTEMBER 10–13, 2014
SVMA CONFERENCE
 Saskatoon, SK
www.svma.sk.ca/events

SEPTEMBER 16–19, 2014
39TH WORLD SMALL ANIMAL VETERINARY ASSOCIATION CONGRESS (WSAVA 2014)
 Cape Town, South Africa
www.wsava2014.com

OCTOBER 25–28, 2014
CANWEST VETERINARY CONFERENCE 2014
 Fairmont Banff Springs Hotel in the heart of Alberta's beautiful mountain parks.

NOVEMBER 3–4, 2014
ANNUAL DELTA EQUINE SEMINAR
 The 43rd Annual Equine Seminar will be held at the Town and Country Inn, Delta, BC.

2015 CONFERENCES

JANUARY 29–31, 2015
ONTARIO VETERINARY MEDICAL ASSOCIATION CONFERENCE
 Toronto, ON

JULY 16–19, 2015
CVMA 2015 CONVENTION AND AGM
 Calgary, AB

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www.vin.com

International Veterinary Information Service
www.ivis.org/home.asp
 University of California, Davis
www.vetmed.ucdavis.edu/ce
 Lifelearn
www.lifelearn.com

LOOKING FOR VETERINARY CE EVENTS AROUND THE WORLD TO COMBINE LEARNING AND TRAVEL? Cruises in 2014 include Cardiology I–IV, Dentistry I–III, and Dermatology I and III. Check the calendar for events large and small at www.vetagenda.com

If you wish to publicize your Continuing Education event in *West Coast Veterinarian*, please email the following details to wceditor@gmail.com with CE Event in the subject: date, location, title of event, website for further details.

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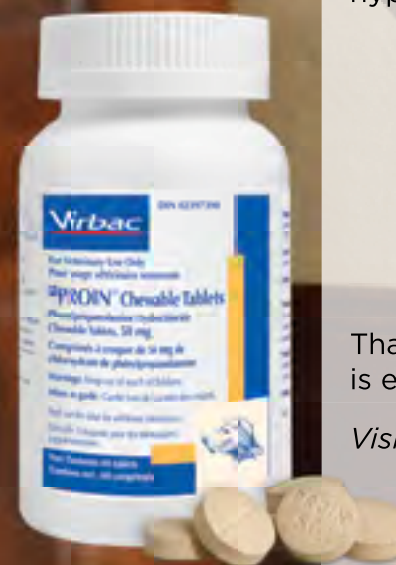
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 2. Multi-Centre, Open Label, Clinical Field Study (PLI-CL002) Clinical evaluation of the long-term effectiveness and safety of PROIN Chewable Tablets for the control of urinary incontinence in dogs.

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