



COMPANION ANIMAL HEALTH FUND

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Vet Topics



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Please send comments to:

Dr. John Pharr, Editor, *Vet Topics*
 WCVM, University of Saskatchewan
 52 Campus Drive
 Saskatoon, SK S7N 5B4
 T: 306-966-7060 F: 306-966-7174
john.pharr@usask.ca

Editor: Dr. John Pharr

Managing editor: Myrna MacDonald
 For article reprint information, please contact sm.ridley@sasktel.net.



The Ultimate Variety Show

Veterinary students at the Western College of Veterinary Medicine are gearing up to showcase the variegated world of their profession during VETAVISION 2007. The veterinary variety show takes place from March 22-25 in Saskatoon, Sask.

Need some variety in your life at the end of a long winter? WCVM veterinary students know just what to prescribe: a healthy dose of Vetavision 2007 — the ultimate veterinary variety show in Western Canada.

Organized by WCVM students every three years, Vetavision gives everyone from preschoolers to seniors a view of the multi-species, multi-sector world of veterinary medicine.

Because WCVM is undergoing a major expansion, organizers decided to move Vetavision from its usual fall time spot to the spring of 2007 when several construction projects will be completed, says event chair Kerri-Rae Sprott.

During the four-day show, visitors can take tours through the College's facilities, browse through interactive displays highlighting everything from anatomy to zoology, sit

in on entertaining talks and pet all kinds of animals in Vetavision's most popular venue — "Kiddies Korral" (a petting zoo for kids of all ages).

Vetavision is also the ideal spot for pet owners to pick up more health care tips on caring for dogs, cats and exotic pets. As well, guest speakers will talk about the extraordinary efforts of police dogs, therapy animals and dogs that provide support for people with disabilities.

The challenge for WCVM's 280 undergraduate students is to design a public exposition that accurately reflects the expanding roles and responsibilities of their profession, says Kent Weir, another member of Vetavision's organizing committee.

"It's interesting just to see how much progress and how much scope there is in veterinary medicine," says the fourth-year veterinary student (bottom row, second from right). "There are so many options to choose from: a radiologist, a surgeon, a large animal veterinarian, an ophthalmologist, a wildlife veterinarian — plus dozens of other possibilities. I really don't think a lot of people are aware of our profession's diversity."

For more information, email vetavision2007@usask.ca or call 306-966-1967.



Major Donation Benefits WCVM's Companion Animal Health Programs

Companion animal-focused health care and training for veterinarians at the University of Saskatchewan's Western College of Veterinary Medicine (WCVM) have received a major boost from a large gift to the veterinary college's research and academic programs.

On August 27, 2006, Heather Ryan and L. David Dubé announced a \$1.07-million gift to the College through their charitable foundation. While the Saskatoon couple has directed WCVM to use the majority of the funds — \$750,000 — for support of major equine health research projects over the next five years, the gift also includes major support for companion animal health research and training.

Based on the donors' wishes, the College's Companion Animal Health Fund (CAHF) will receive \$125,000 to support its annual research grant and graduate student training programs. CAHF's research grant program annually supports research studies of scientific merit that target critical issues in companion animal health. Each year, the Fund also supports the specialized training of graduate students through its CAHF research fellowship program.

The CAHF's sister fund — the Equine Health Research Fund — will also receive \$125,000 for its research and specialist training programs.

"Our horses and pets are a hugely positive part of our lives, and through them, we've met some exceptionally compassionate, dedicated people at WCVM," says Dubé, a 1985 alumnus of the U of S.

"Our belief is that if we fund world-class research right here in Western Canada, we will help to retain and attract some of the most innovative minds in veterinary medicine. Plus, we want our donations to work as leveraging tools for attracting additional funds from other organizations and individuals, and for establishing collaborative relationships with other scientists and research institutions."

Based on the donors' wishes, WCVM will also allocate \$70,000 of the donation to establish two new, full tuition scholarships for undergraduate

veterinary students who have demonstrated an interest in equine or companion animal health care.

One of the new awards, the "Buddy and Dr. Snead Award in Small Animal Care," will be annually presented for the next five years to fourth-year students who have demonstrated a commitment to exceptional patient advocacy and compassionate care in the small animal clinical rotations.

The annual award, which is worth about \$7,000, was named after WCVM's Dr.

Elizabeth Snead and "Buddy." Snead treated the couple's beloved cat at the College's Veterinary Teaching Hospital during a recent illness.

"As exemplified by the care, compassion and incredible bedside manner shown by Dr. Snead to our boy Buddy, this student will have demonstrated a 'Patient First' approach emphasizing the importance of treating the patient and not only the disease," describes the award summary.

Ryan and Dubé established their own charitable foundation to support organizations that reflect their interests and passions — including horses and companion animals. While this is the

foundation's first major gift, Ryan and Dubé have supported WCVM's Equine Health Research Fund and its Companion Animal Health Fund for several years. They are also longtime clients of the College's Veterinary Teaching Hospital.

The new funding will nearly double WCVM's annual equine health research dollars for the next five years and significantly increase its companion animal health research grants during the same period, says WCVM Dean Dr. Charles Rhodes.

"Having such a significant commitment in place will allow our researchers to make real progress in developing better ways to diagnose and treat diseases in horses and pets. At the same time, our college is undergoing a \$57-million expansion that will provide our researchers with upgraded facilities and the most advanced technologies so they can continue to conduct cutting-edge research."

In addition to their gift, Ryan and Dubé have pledged to "match" any new money contributed to the fund that they created for large-scale equine health research projects at WCVM or any increased amounts in contributions to the Equine Health Research Fund during the next five years. The donors will annually contribute

"Our horses and pets are a hugely positive part of our lives, and through them, we've met some exceptionally compassionate, dedicated people at WCVM."

— L. David Dubé —

Continued on page 3

Veterinary Dentistry Residency Program Approved for WCVM

The Western College of Veterinary Medicine has received approval from the American Veterinary Dental College (AVDC) to offer Canada's first accredited residency program in veterinary dentistry. WCVM is one of 10 sites accredited by AVDC, the certifying organization for North American veterinary dentists. It's also the first AVDC-accredited site outside of the United States.

WCVM plans to offer a three-year residency program in veterinary dentistry that graduate students will complete along with a Master of Veterinary Science (MVetSc) degree, says Dr. James Anthony, the board-certified veterinary dentist who will implement the new residency program. WCVM's first dentistry resident could potentially start as early as July 2007.

Although all veterinarians are trained in basic veterinary dentistry and dental techniques, this new initiative — like WCVM's other residency programs — will provide advanced, specialized training for graduate students and prepare them for careers in academia, specialized practice or research.

The new program will have clinical, research and academic components, plus rotations in radiology, surgery and anesthesia. It will also include activities that are "above and beyond" AVDC's requirements, explains Anthony, an associate professor at WCVM.

"Our residents will have more in-depth exposure to oral pathology and histology. The diverse caseload at WCVM's Veterinary Teaching Hospital will also allow our residents to gain hands-on experience with various species: dogs, cats and pocket pets as well as horses, domestic and specialized livestock, exotic animals and wildlife."

Achieving AVDC accreditation has been WCVM's goal since Anthony joined the college's faculty on January 1, 2006. Anthony, the first veterinary dentist to fill an academic position in Canada, is a 1983 WCVM graduate with more than 20 years experience in operating general and referral practices in Vancouver, B.C., and Los Angeles, Calif. Anthony has also taught post-graduate courses and mentored several veterinarians in veterinary dentistry.

Since his arrival at WCVM, Anthony has provided undergraduate veterinary students with more advanced training in veterinary dentistry. He has travelled to meet western Canadian veterinarians at their own clinics and is developing a continuing education program for practitioners who want to enhance their core veterinary dentistry skills.

The specialist is also developing referral and clinical services at WCVM: "We're receiving tremendous support from referring veterinarians, and as a result, we're getting a very diverse case load that has exceeded my expectations," says Anthony.

In the past eight months, he and his staff have conducted orthodontic procedures, major facial reconstruction, jaw repairs, cancer therapy and oral medicine procedures on a range of species including dogs, cats, rabbits, guinea pigs, horses and wildlife.



Major Donation (continued)

up to \$100,000 in matching funds — an exciting challenge that provides the College with the opportunity to potentially raise \$1 million for its equine health research programs by 2011 (visit www.ehrf.usask.ca for more details). ▼

For more information about supporting the Companion Animal Health Fund, please visit www.cahf.usask.ca or contact the College's Development Office (306-966-7268; wcvm.supportus@usask.ca).

ABOVE: L. David Dubé and his wife, Heather Ryan, announce their gift to WCVM during a special celebration at Willow Ridge Stables near Saskatoon, Sask. The presentation followed a polo match organized by Dubé, Ryan and other members of the Saskatoon Polo Club.

\$1.07 MILLION GIFT: DISTRIBUTION

- **Major equine health projects:** Over the next five years, \$750,000 of the donation will go toward large-scale research projects that are designed to make significant and tangible progress in critical issues of horse health.
- **Equine Health Research Fund** receives \$125,000 to support its annual research grant and graduate student fellowship programs.
- **Companion Animal Health Fund** receives \$125,000 to support its annual research grant and graduate student fellowship programs.
- **Undergraduate veterinary education:** \$70,000 of the gift will be used to establish two new, full-tuition scholarships for undergraduate veterinary students who have demonstrated an interest in equine and companion animal health. The scholarships, worth about \$7,000 each, will be annually awarded to selected students for the next five years.

Are pets affected by second-hand smoke?

New University of Saskatchewan research — soon to be peer-reviewed — suggests there are measurable changes in the heart and blood vessels of dogs exposed to second-hand smoke in the home. In humans, such changes are a precursor of cardiac disease.

“Our pets are being affected,” says Dr. Lynn Weber, assistant professor at the U of S Western College of Veterinary Medicine (WCVM). “Next we want to figure out what are the consequences of these effects.”

Veterinary medicine student Tim German led the study. He and Weber, his supervisor, hope to submit their findings for publication this winter.

German is a Merck-Merial Veterinary Scholar, a drug company-sponsored program that provides veterinary students the opportunity to do research during the summer. In July 2006, he presented the findings at a poster session during the Merck-Merial symposium in Baton Rouge, La.

“We were looking for a possible link between canine health and cigarette smoke exposure,” German says. “The results suggest exposure to cigarette smoke causes structural and functional cardiac changes in dogs.”

The study looked at two sets of dogs: six from smoking homes and eight from non-smoking homes. The healthiest dogs based on age, weight and body condition were used.

To determine the health of the dogs, German used a variety of methods — from pet owner questionnaires to complete physical examinations of the dogs, including blood tests and ECGs (electrocardiograms).

“We wanted to look at everything,” he says. “We went from tip to tail. If you could look at it, we were going to look at it.”

German relied on his experience as a first-year veterinary student and years of volunteering at WCVM and other clinics around Saskatoon.

Ultrasound measurements of the heart showed that dogs from smoking households had more muscle on the left side of the heart. This can be a sign of high blood pressure because the heart has to pump harder in order to distribute the blood to the body.

While extra heart muscle is sometimes seen in very athletic dogs, the questionnaire showed each of the dogs had similar fitness levels. “They were pretty much couch-potato dogs in both groups,” German says.

He also used flow-mediated dilation, an ultrasound procedure for viewing arteries in human medicine that permits measurement of artery relaxation. According to Weber, this is one of the first times this procedure has been used in a veterinary context.

The flow-mediated dilation revealed that dogs from smoking homes have decreased relaxation in their arteries, another potential indicator of high blood pressure.

Blood pressure was not directly measured in the dogs because typical methods used to test blood pressure in humans are less reliable with pets. This summer, German and Weber will focus on second-hand smoke effects on blood pressure in dogs using specialized equipment.

Though there were detectable changes in the dogs’ cardiovascular system, German notes the changes occur without signs of sickness in the dog. In humans who smoke, these same indicators frequently lead to cardiac disease. If the changes Weber and German saw in the dogs’ hearts were happening in a human’s heart, there would



Pets and Second-hand Smoke

By Angela Hill

be significant health consequences, says Weber. She wants to continue to study this phenomenon to discover what these consequences are for dogs.

If high blood pressure in dogs from smoking households persists over time, Weber and German think cardiovascular disease will occur. “If second-hand smoke is bad for our pets, what effect is it having on children?” says Weber. **V**

Reprinted with the permission of the U of S Research Communications Office (www.usask.ca/research/communications). This article is part of a partnership initiative between The StarPhoenix and the U of S Research Communications Office to highlight the work of student researchers and to showcase the efforts of student writers and photographers. Angela Hill is a University of Regina journalism student who worked as an NSERC-funded student intern at the U of S Research Communications Office during the fall of 2006.

ABOVE: Ultrasound measurements of dogs’ hearts was one way that veterinary student Tim German determined the effect of second-hand smoke on pets. Photo: Liam Richards.



Medical Oncologist Joins WCVM's Cancer-fighting Team

The Western College of Veterinary Medicine's team of clinicians and researchers whose work focuses on the fight against cancer in pets have gained a valuable new member: veterinary medical oncologist Dr. Valerie MacDonald.

Over the next few years, MacDonald will establish a clinical practice in medical oncology at WCVM, along with undergraduate teaching and research programs in the specialized area. The College plans to eventually develop a clinical residency program for veterinarians who want to specialize in veterinary medical oncology.

Just as in human medicine, veterinary medical oncologists have specialized training in understanding the biology of different types of cancer: how and where certain types of tumours spread, how they can be treated and how long affected animals can survive. Oncologists use a variety of diagnostic tools — medical imaging, biopsies and aspirates — to conduct “staging tests” for accurate prognoses and work with other specialists to develop the most effective treatment plans for their patients.

“All veterinarians have general knowledge about diagnosing and treating cancer, but what medical oncologists can do is provide more of a detailed view about specific types of cancer,” explains MacDonald, a board-certified specialist in veterinary medical oncology.

Originally from Pictou, N.S., MacDonald graduated from the University of Prince Edward Island's Atlantic Veterinary College in 2000. She spent two years in Phoenix, Ariz., at a small animal practice before beginning a three-year medical oncology residency at the University of Wisconsin under the supervision of Dr. David Vail, a graduate of WCVM. MacDonald completed her residency and became a diplomate of the American College of Veterinary Internal Medicine (medical oncology) in 2006.

While a number of American institutions have established veterinary medical oncology programs, the specialization is still fairly new in Canada. WCVM and the Université de Montréal (St. Hyacinthe) have recently hired veterinary medical oncologists, while internal medicine specialists at the Ontario Veterinary College work part-time with a medical oncologist.

“For me, the fact that Dr. Monique Mayer (veterinary radiation oncologist) was already here was one of WCVM's main attractions,” says MacDonald, adding that few veterinary schools have a pet radiation oncology program in operation. Other attractions were the University of Saskatchewan's College of Medicine, the Saskatoon Cancer Centre and the synchrotron.

While a large part of MacDonald's residency focused on clinical experience, she was also involved in a research study with Dr. Stuart Helfand that investigated the use of a class of drugs called small molecule inhibitors or SMIs to treat canine hemangiosarcoma. This highly metastatic type of cancer usually affects a dog's spleen, heart or skin before spreading quickly to lungs or other organs.

“Receptor tyrosine kinases (RTKs) are a type of receptor that sits on the outside of normal and malignant cells and signal them to divide, proliferate and grow. SMIs are actually designed to inhibit or ‘shut off’ that signal,” explains MacDonald.

The research team used a hemangiosarcoma tumour extracted from a dog to make a cell line, then used a human drug called Gleevec® to successfully block the expression of certain receptors on the tumour cells.

All of the team's research was based in the lab, and additional studies need to be done on similar drugs before initiating any clinical trials. But because this type of

cancer is so devastating, MacDonald says the development of a new treatment that could be effective in combination with other therapies is worthwhile. “It's these kinds of practical research projects that really interest me because they may eventually lead to clinical trials for these new drugs — and more effective ways to treat our patients.”

With her links to specialists across North America, MacDonald hopes to include WCVM in multi-site clinical trials — research that will also enrich the training of future medical oncology residents at WCVM. In addition, she plans to set up a continuing education program for private practitioners who want to increase their knowledge of oncology diagnoses and therapies.

Once MacDonald returns from a maternity leave in April 2007, she will begin accepting referred patients in WCVM's new medical oncology area — part of the Veterinary Teaching Hospital's expansion. The specialist also looks forward to developing a teaching program for undergraduate veterinary students that focuses on diagnosing and treating some of the most common tumours that they'll regularly see in practice.

Based on her experience as a private practitioner, MacDonald acknowledges that all therapies aren't always available to pets diagnosed with cancer. Nevertheless, it's important for veterinarians to be able to provide their clients with enough background about treatment options so owners can make informed decisions about their pets' health.

“Veterinary medicine has come a long way from a time when a cancer diagnosis meant a pet had to be euthanized. Now, we can actually cure dogs and cats with cancer. We can't do that with every animal, but there are definitely far more treatment options that we can now offer to pet owners,” says MacDonald.

“The bottom line is that the focus of any cancer treatment has to be the patient's quality of life. We want the patient to be happy, the client to be happy — and we want to be happy as well.” **V**

ABOVE: Dr. Valerie MacDonald, WCVM's new veterinary medical oncologist in the College's Department of Small Animal Clinical Sciences.



Radiation Oncology, Step by Step



During its short history, the Western College of Veterinary Medicine's radiation oncology centre has already made a tremendous difference in the lives of dozens of pets and their families.

The College's radiation oncology centre began operating more than two years ago under the guidance of Dr. Monique Mayer, a veterinary radiation oncologist who joined WCVM's faculty in July 2004. Equipped with a cobalt radiation machine and radiation treatment planning software, Mayer and the rest of the centre's clinical team can offer more options to families whose pets have been diagnosed with cancer.

Oncology specialists use curative radiation therapy to eradicate cancerous cells from a patient's body, or to control the growth of malignant tumours. Based on a comprehensive radiation treatment plan, a patient's clinical team can use radiation therapy as a primary treatment or in combination with other options like chemotherapy, surgery and biological therapies. Radiation treatments are given once a day, five days a week, and may continue for three to five weeks — depending on the cancer type, the size of the tumour and its location.

Clinical teams also use radiation for palliative care to improve the quality of life for patients. These treatments won't cure cancer, but they will temporarily relieve patients' pain and other symptoms associated with the disease. In these cases, the clinical team may only need to give one to three radiation treatments to a palliative patient.

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Radiation Oncology (continued)

Last summer, Mayer and her clinical team gathered some interesting statistics about the centre's cases during its first 19 months of operation:

- Between November 2004 and July 2006, WCVM's radiation oncology centre provided radiation treatments for 67 dogs and cats.
- The centre's patients were referral cases from 56 veterinary clinics across Western Canada: six per cent from B.C., 63 per cent from Alberta, 18 per cent from Saskatchewan and 13 per cent from Manitoba.
- Of the centre's canine patients, 76 per cent were purebred animals while 24 per cent were mixed breed dogs. Among the centre's purebred patients, 27 per cent consisted of rottweilers and Golden retrievers.
- The most common tumour types in dogs treated with full course, curative radiation therapy were mast cell tumours (27 per cent) and soft tissue sarcomas (30 per cent). The most common canine tumour type treated with palliative radiation therapy was osteosarcoma (47 per cent).

For more information about WCVM's radiation oncology program, visit www.petradtherapy.usask.ca.

PRECEDING PAGE (top and bottom left): Radiation oncology technician Donna Smandych holds "Shiloh" while veterinary technologist Tara Shymko sets up an intravenous catheter and places an endotracheal tube in the dog's windpipe. A short, general anesthesia is administered to ensure that the patient remains perfectly still during a radiation treatment.

Top centre: Shymko, Smandych and radiation therapist Erica Collen take about 10 to 20 minutes to carefully position their anesthetized patient and set up equipment before the radiation treatment.

Centre: Collen checks her patient's position underneath the cobalt radiation unit. The crossing red laser beams (top right) are used to ensure that the dog is in the correct position before treatment.

Right centre: Veterinary technologist Tara Shymko double-checks equipment settings before treatment.

Bottom centre and right: During the actual radiation treatment, Shymko and Collen closely watch their patient's vital signs using video monitors and a microphone in the treatment room.

Far left: "Lola," owned by Dr. Candace Grier, serves as the centre's "mascot."

THIS PAGE, top left: Shymko, Collen and Smandych return to Shiloh's side after the radiation treatment is completed.

Bottom left: A close up view of custom shielding that's made from certain types of treatment. It serves to shape the radiation beam and help protect healthy organs and tissues that are situated close to a tumour.

Bottom right: Smandych hugs her groggy patient as the anesthesia drugs wear off.

Top right (from left to right): Shiloh's clinical team includes clinical associate Dr. Candace Grier, Collen, veterinary radiation oncologist Dr. Monique Mayer, Shymko and Smandych.

Photos: Michael Raine



PETS: Great Gains from No Pain

Stories by Roberta Pattison

Veterinarians have been paying much more attention to the subject of controlling pain in companion animals — especially when it comes to treating chronic conditions such as arthritis or caring for post-operative patients. And it's become more than a humane issue: recent studies have shown that when post-operative pain is reduced, animals are not only more comfortable but they also recover more quickly after surgery.

To discover more pain control solutions for pets, veterinary researchers are turning to human medicine to identify effective *analgesic* (pain control) drugs that may be just as effective in controlling pain in animals. While human researchers have learned a great deal about analgesics, veterinary scientists still know very little about specific dosages and possible side effects of these drugs on companion animals.

To address some of these unknowns, research teams at the Western College of Veterinary Medicine (WCVM) investigated two particular analgesic drugs: an opioid called *fentanyl* that veterinarians often use to control post-operative pain in small animals, and *tramadol*, a narcotic analgesic. Both studies received financial support from the College's Companion Animal Health Fund's annual research grant program.

Fentanyl: immunosuppressive?

Small animal clinicians often use fentanyl in the form of a transdermal patch mainly because of its convenience: it offers a simple method of pain control over several days and allows the patients to be discharged to their homes. Developed for human use, it works like a nicotine patch and provides the pet with a constant diffusion of the analgesic drug.

However, results of a 2004 study indicated that when fentanyl was given to rats, the drug depressed the animals' immune system to some extent. This side effect is potentially significant since fentanyl is often used after orthopedic surgery where there's a high risk of infection, explains Dr. Alex Livingston, a veterinary pharmacologist and pain control specialist in WCVM's Department of Veterinary Biomedical Sciences.

In a two-stage study, Livingston worked with veterinary immunologist Dr. John Gordon, veterinary anesthesiologist Dr. Tanya Duke and veterinary student Kristen Roberts to determine if the transdermal fentanyl patch produced a similar immunosuppressive effect in dogs.

As the researchers developed the study's steps, their challenge was in deciding what responses to test in the dogs: "We didn't know what to expect. Nothing before had been done to provide us with guidelines, so our approach was to do a broad sweep. Several kinds of immune cells were examined and counted, and their activity tested," describes Livingston.

As a first step, researchers gave an intravenous injection of fentanyl (five micrograms per kilogram) to six crossbred male dogs. Before injecting the drug, the team took blood samples from the dogs, then followed up with another set of blood samples 24 hours after the injection.

In the study's second stage, scientists applied a transdermal fentanyl patch to each dog's flank that delivered hourly doses of approximately three micrograms per kilogram. Again, the team took blood samples before the patches were applied, then at 24, 48 and 72 hours after application. The researchers removed the patches after three days — the typical time length for use in clinical situations.

After analyzing the dogs' blood samples, researchers found a wide range of response in terms of the numbers, the kind of cells present and the changes in the cells themselves. The transdermal patch generally had more effect on the dogs than the intravenous injections, but as Livingston emphasizes, these are the findings from a preliminary study.

"There were definite changes — we need to find out if these are significant. Several things changed so now we need to zero in (on those changes) and conduct clinical studies," says Livingston, adding that the jump from the lab to real life always has an impact on future results. "These were healthy dogs: now work needs to be done involving actual clinical cases."

As Livingston explains, there are two types of immunity: *innate* (the body's ability to respond to a challenge) and *acquired* (gained through vaccination or primed by exposure).

"Fentanyl is often used after orthopedic surgery, and if a dog's innate immunity is suppressed post-operatively, he might be at risk for infection. Also, a canine patient is entering an environment where there are other dogs: will fentanyl compromise its acquired immunity? There's lots of scope for follow-up work."

Studying tramadol's tricks

Livingston has also been involved in a second analgesic drug study with veterinary pharmacologist Dr. Trish Dowling of WCVM's Department of Veterinary Biomedical Sciences and small animal clinician Dr. Chantal MacMillan. The researchers investigated tramadol — a drug that has recently found its way from human medicine into veterinary applications where there's limited information about its performance in dogs and other companion animals.

"Tramadol is fascinating because of its multiplicity of action," says Livingston. "It acts in some ways like morphine, but also like *norepinephrine* (a hormone and neurotransmitter). Its analgesic effects are synergistic but not its side effects. In fact, there are very few respiratory or cardiovascular side effects at all."

In humans, the liver metabolizes tramadol — producing a highly effective, active metabolite called *desmethyiltramadol* that significantly increases the length and potency of the drug's analgesic action. "However, not all people produce the metabolite, and one of the objects of our study was to discover if dogs

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No Pain (continued)

possess the enzyme required to produce it,” Livingston explains. “While our work was underway, another study was published and its findings suggested that dogs do produce the metabolite. Our study also said yes — but the levels were so low as to have a negligible effect.”

In this study, Livingston and Dowling gave tramadol to six mixed breed male dogs intravenously at three different doses: one, two and four milligrams per kilogram. The researchers gave the different doses at least one week apart in each dog. A series of eight blood samples were taken from each dog within the first hour, and then researchers took additional samples at two, four, six, 12 and 24 hours after the drug was administered.

One of the study’s main goals was to measure the levels of tramadol and its metabolite to determine appropriate dosage amounts and timing. As well, the researchers wanted to assess the drug’s level of analgesia by evaluating each dog’s pain threshold. However, they weren’t able to fulfil the study’s second goal since the dogs didn’t respond to any of the pain stimuli used. Livingston suspects that because the study’s subjects were culled sled dogs, the tough animals possessed higher pain thresholds.

Based on results from the dogs’ blood work, Livingston says the drug dosage amounts used in the study seemed appropriate. However, dogs eliminate tramadol from their systems much more quickly than humans — suggesting that dogs will require more frequent doses to maintain adequate therapeutic drug concentrations.

As with the fentanyl investigation, this study points out the need for further research — especially with dogs that are already experiencing pain in clinical situations. As well, researchers must do further work to determine whether dogs possess the enzyme needed to produce significant levels of tramadol’s active metabolite. Based on the results of this study and the previous tramadol investigation, it’s likely that the answer varies from one dog to the next — just as in humans. ▼

Roberta Pattison is a freelance writer who is a regular contributor to the national publication, Dogs in Canada. Recently retired from grain farming, she still lives on her farm near Delisle, Sask.

FAR LEFT: “Princess,” a rottweiler-crossbred dog that came along with the Livingston family’s home. Besides Princess, Livingston (above) owns a husky-cross dog called Bandit (a rescue case from the College’s Small Animal Clinic), and Sweep — a collie-cross dog that was given as a puppy to the family.

CHAMPION OF PAIN CONTROL: The sole purpose behind Dr. Alex Livingston’s trip to Italy last September was to talk about his investigations of fentanyl use in dogs during the International Congress of the European Association for Veterinary Pharmacology and Toxicology (EAVPT). Or so he thought.

What happened after he arrived at the University of Turin came as quite a surprise. During the conference’s opening session, the veterinary pharmacologist and veteran researcher of pain control in animals was presented with the EAVPT’s Lifetime Achievement Award — an honour that has only been given to a handful of international researchers.

The prestigious award recognizes Livingston’s considerable contributions in the field of analgesia in veterinary medicine — capping a long career that has been spent seeking new and better ways to improve the care of animals.

That quest began many years ago in Livingston’s native England. As a professor at the University of Bristol, much of Livingston’s research work focused on lameness caused by foot rot and other conditions in sheep and cattle as well as tendon injuries in horses.

In 1992, Livingston and his family moved to Saskatoon where he became dean of the Western College of Veterinary Medicine. After two five-year terms as the College’s leader, Livingston returned to his research and academic roots as a professor of veterinary pharmacology in WCV’s Department of Veterinary Biomedical Sciences.

Once again, Livingston turned his research efforts to the subject of pain control. While recent work has focused on companion animals, he has also collaborated on studies that investigate pain control-related issues with other species including domestic pigs and wild ducks. With the latter species, he and his colleagues looked at whether the insertion of radio transmitters — a monitoring tool for researchers who are studying issues like flight patterns in wild birds — caused pain for the research subjects.

“We’re much more concerned with pain management than we used to be. For example, we now use different drugs for different types of pain — something doctors have been doing with people for ages,” says Livingston. “We still need to persuade both veterinarians and owners that treating pain is important, and this is easier to do with horses and companion animals. However, the public is also becoming more concerned with the way food animals are treated.”

But as public and veterinary interest grows in this area, it’s also become apparent that there’s an urgent need for more peer-reviewed research with a primary focus on animal health care.

“The veterinarian’s role is to provide evidence-based data as opposed to anecdotes,” explains Livingston. “For example, the drug meperidine (a narcotic) has a long-lasting effect in humans, and for quite a while, veterinarians used it based on evidence from human studies before they found out it lasts only 30 minutes in dogs. Another issue that concerns us is drug residue in food animals: many drugs last a long time in the body which is why they’re effective, of course.”

But besides developing a greater knowledge base in pain control, Livingston also points to another benefit that emerges from research like the two studies that he and his colleagues conducted with the Companion Animal Health Fund’s support. Thanks to the researchers’ efforts, a group of abandoned dogs are now enjoying the comforts of permanent homes.

“It’s a nice spin-off effect from these studies since the dogs we used were cast offs — no one wanted them any more,” says Livingston. “We not only gained useful information from them, we placed them in good homes. That wouldn’t happen otherwise.”



Delta Saddler's beloved creatures have provided comfort and friendship to the elderly and to people with special needs for more than 30 years. Now, the B.C. pet owner, dog trainer and animal therapy pioneer is returning the favour by establishing an endowment fund for the support of canine health research at the Western College of Veterinary Medicine.

Creature Comforts

by Roberta Pattison

Delta Saddler can't remember a time when animals weren't part of her life. As an only child growing up in and around the community of Vernon, B.C., she and her animal-loving family owned pets of every description: dogs, cats, rabbits, budgies, canaries — even Cochin bantam chickens.

Today, Saddler's involvement with animals continues as she shares her home with four Boston terriers and a rambunctious Rhodesian ridgeback puppy named *Tamu-Mume* (which means "sweet boy" in the African language of Kiswahili). Over the years, Saddler has owned or trained dogs of 14 different breeds — from Boston terriers to rottweilers to greyhounds. She has even bred a few litters of Boston terriers — a breed with which she has been involved since she was a young girl.

But for the most part, she buys her dogs from others instead of breeding them herself. "I'm too soft to be a breeder," admits Saddler, who first trained a dog in 1961 and has taught dog obedience for the past 20 years. Owners and dogs of all breeds can take Saddler's classes during 10 months of the year.

"As far as training methods go, I've run the gamut from using food and clicker training back to good old-fashioned love. Nothing beats a big hug or a kiss on the forehead," she maintains. "And you do have to remember to adapt your training to accommodate the different breeds. For example, Border collies prefer to lie down instead of sit, and sighthounds often don't like to sit at all."

For more than 30 years, Saddler has also been involved with animal therapy, bringing animals into nursing homes and other institutions to help the elderly and others with special needs. In fact, she's one of the first to introduce the animal therapy concept in British Columbia.

Saddler's interest began in the 1970s when her mother convinced her to take her dog and visit an elderly man in a nursing home in Victoria, B.C. "We were ages getting to him because so many people stopped to talk to us and to pet the dog along the way. When we finally reached him, he was thrilled. And then it took us another three quarters of an hour to get back out!" she recalls.

At the time, there was nothing along the lines of organized pet therapy in B.C. "I was living in the Lower Mainland then — in Langley — and had come

home to Vernon for a visit. I was talking to Dr. Terry Quesnel (WCVN '74), and he strongly encouraged me to start an animal therapy group as he had read about them in veterinary publications. When I returned to Langley, my veterinarian (Dr. David Marlow) lent me some Irish publications regarding animal therapy:

Europe was way ahead of North America in the field. And that's how it all got started."

When Saddler moved back to the Vernon area more than 12 years ago, she started an animal therapy group of 20 to 25 people with the help of Quesnel who was responsible for getting dogs and cats into local nursing homes in the area.

"The idea behind animal therapy is to 'bring out' patients, encourage them to talk, and to get them to touch the dogs. Patting the dogs is a sensual thing — it lowers the heart rate. The blind want to touch the pets' faces and feel the different coat types," describes Saddler. "We have about 25 different dog breeds in our group, and we go to four to six places — one each week. It's a lot of work, but it's rewarding."

Given her background and her particular concern for the health and care of pets and people, Saddler recently decided to make a bequest to the Western College of Veterinary Medicine — leading to the establishment of the **Delta Saddler Fund for Canine Research**.

"I have no children, and I want to give money where it will benefit both animals and people because veterinary medical research has a human application too," she explains. "Thirty or 40 years ago, little was known and little was being done in the field of canine research. That's starting to change."

Saddler's own interest in veterinary research developed over the years as she dealt with her dogs' problems. "My interest really started when I still lived in Langley. The area is thick with blackberry canes, and my Bostons had difficulties because the canes scratched their bulgy eyes. Dr. (Paul) Dice, a veterinary ophthalmologist at Washington State University, fixed the problem by fitting one of my dogs with a contact lens. It seemed amazing at the time — but there have been so many advances in health care since then," says Saddler.

Besides research in specialities like veterinary ophthalmology, she has concerns about the questions surrounding inherited disease in dogs. From her perspective, she feels that this problem is becoming more prevalent and needs to be addressed in future research projects.

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Creature Comforts (continued)

After Saddler told her friends about her decision to donate money to WCVM, one friend also decided to make a bequest and another is considering the option. "I haven't tried to persuade or influence them in any way. I've just told them what I've done myself," she says modestly. "They are making their own decisions — just as I made mine."

Later this year, Saddler plans to retire from the local animal therapy group and hopes that other volunteers in her community will discover the joys of sharing their pets with others. But that's not to say that Saddler will be slowing down: she's still teaching obedience courses to a continuous stream of pets and their owners. Plus, she has her own lively puppy — Tamu — to train. "He's a handful," she ruefully admits.

Sounds like the perfect challenge for someone whose life has always been enriched by the friendship of her creatures. **V**

At left: Delta Saddler sits on her front step with three of her Boston terriers (Justin, Hope and Denver) and her rottweiler, Do B-have.

Below: Saddler and four of her Boston terriers enjoy the sun during a vacation in the American San Juan Islands.



Q. The Delta Saddler Fund for Canine Research is an endowed fund. What does that mean?

That means that the fund is set aside as an investment to be used only for the long-term support of the College's canine health research initiatives. The principal amount of the gift is never spent: we invest it and use a portion of the income that's generated annually to support vital canine animal health research. The remaining income is reinvested in the endowment fund to ensure that the original capital is protected against the effects of inflation.

Establishing an endowed fund is a wonderful way to leave your legacy. You can know that your gift will be used to advance something that's important to you for generations to come.

For more information about establishing an endowment fund, making a bequest in your will or contributing directly to the Companion Animal Health Fund, please contact WCVM's Development Office (306-966-7268 or wcvm.supportus@usask.ca).

PET PROJECTS

Highlights of published companion animal research
conducted by WCVM scientists

Fast reaction to prickly problem reduces complications

Based on a study conducted at the Western College of Veterinary Medicine (WCVM), the best way to prevent further complications after an encounter between your dog and a porcupine is to take your prickly pet for veterinary care as soon as possible.

Conducted by Drs. Matthew Johnson, Kristenn Magnusson, Cindy Shmon and Cheryl Waldner of WCVM, the retrospective study evaluated nearly 296 visits at the College's Veterinary Teaching Hospital that involved 242 dogs with porcupine quill injuries between 1998 and 2002.

What the researchers found was that increased time between the quill injury and presentation of the pet to a veterinarian was associated with an increased risk of complications. Cases that were presented 24 hours or more after the initial porcupine encounter were five times more likely to have complications than cases presenting within 12 hours of the quill injury.

Of the 296 cases of quill injuries in dogs, veterinarians observed complications in 32 cases. Twenty-two of these cases were diagnosed with and treated for cutaneous abscesses in regions near the previous quill injury, while six dogs suffered from lameness that required surgical exploration to remove additional quills. The remaining four cases had periocular (eye-related) complications.

Based on their case review, the WCVM scientists reported that several factors may contribute to the significant increase in risk of complication for patients presenting after 24 hours. The key problem is that untreated or incompletely removed quills may migrate and cause further problems. "The longer quills remain in a dog, the more time they have to migrate deeper into tissues — making them more difficult to find," reports the study's authors. "Additionally, quills become less rigid and more friable (brittle) the longer they remain in tissues, making them more susceptible to breakage during removal."

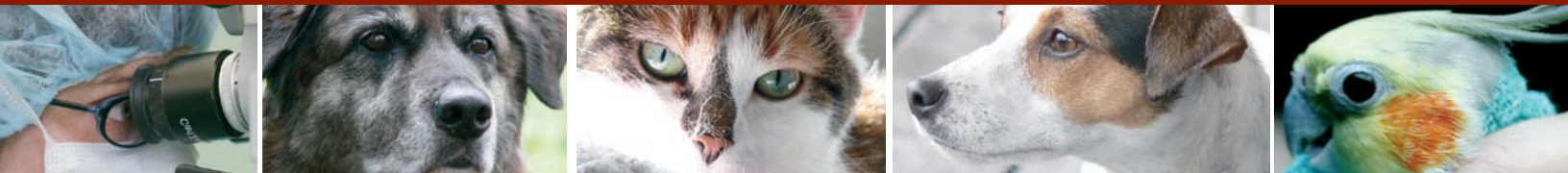
While dogs were treated for quill injuries throughout the year, the occurrence was higher in the spring and fall months. The average age of the majority of dogs was about three years old, and hospital visits for quill removal were nearly six times more frequent in large-breed dogs. Compared with total visits of all breeds, incidents involving Siberian huskies, rottweilers and German shepherd crosses were much higher.

As well, the study included 54 cases of repeat incidents involving porcupine encounters. "Owners should be warned that dogs do not 'learn from their mistakes' and that repeat quill injury episodes are common," reports the study's authors.

The research team recommends public education and awareness programs as the best means of avoiding porcupine encounters. Informational posters about porcupine interaction safety and quill removal guidelines that could be displayed at veterinary clinics and popular off-leash parks during peak times may also help to curb the number of porcupine encounters.

Johnson MD, Magnusson KD, Shmon CL, Waldner C. "Porcupine quill injuries in dogs: a retrospective of 296 cases (1998-2002)." 2006. *The Canadian Veterinary Journal*. 47(7): 677-682.

Companion Animal Health Fund



Western College of Veterinary Medicine

www.cahf.usask.ca

BITS & BITES

PHARR HEADS CONFERENCE: Veterinary medical imaging specialist **Dr. John Pharr** of WCVM was the principal organizer for the premier event of the international veterinary radiology community: the 14th triennial meeting of the International Veterinary Radiology Association (IVRA) from August 7 to 11, 2006. This was Canada's first opportunity to host the IVRA meeting that has been held every three years since the organization's creation in 1967.

More than 250 delegates from 26 countries gathered in Vancouver, B.C., to attend the joint meeting of the IVRA and the American College of Veterinary Radiology. The European College of Veterinary Diagnostic Imaging and the European Association of Veterinary Diagnostic Imaging also held annual meetings in conjunction with the international conference.

Pharr, who served as program chair, began organizing the event in 2000. The meeting's program included several keynote speakers, 75 oral presentations and 19 poster presentations.

WCVM SURGEON HONOURED: Dr. Cindy Shmon, a small animal surgical specialist in WCVM's Department of Small Animal Clinical Sciences, was the recipient of the Canadian Veterinary Medical Association's Small Animal Practitioner Award for 2006. The award was presented last July during CVMA's annual conference in St. John's, Nfld.

Shmon, a 1984 WCVM graduate, joined the College's faculty in 1988 after completing internship and residency programs at the University of Guelph.

Besides her own surgical work, Shmon supervises the teaching hospital's small animal surgery section and is involved in undergraduate

and graduate teaching. The associate professor has also conducted a number of research studies in the areas of soft tissue surgery, neurosurgery, urogenital surgery, injuries in working and growing dogs, and the teaching of surgical skills.

WCVM INTERN PRESENTS: Dr. Enry da Silva, a clinical intern in WCVM's Department of Small Animal Clinical Sciences, was one of the presenters at the American College of Veterinary Ophthalmologists' annual meeting in San Antonio, Tex., in November 2006.

The intern presented "Canine optic nerve hypoplasia and aplasia — a histomorphologic review of 13 cases." The study's goal was to analyze the histologic changes found in these two rare congenital ocular diseases that affect dogs as well as cats, horses and even humans — among other species. Researchers were looking for particular features that could help diagnosis during ophthalmoscopic evaluation of the retina and optic nerve.

"Each disease showed different particular features. Some of these findings correlated with the human form of the disease while others had never been reported thus far," explains da Silva, who conducted the study in 2005 during an externship at the Comparative Ophthalmic Pathology Laboratory of Wisconsin. In 2004, da Silva received his DVM from the UPIS/FAVET-Integrated Colleges in Brasilia, Brazil.

Drs. Bruce Grahn and Lynne Sandmeyer, WCVM's two veterinary ophthalmologists, also presented innovative research findings at the conference. For more details, please visit www.cahf.usask.ca (news).

CAHF MAKEOVER: Grab a cup of coffee and spend some time at www.cahf.usask.ca — the online home of the Western College of Veterinary Medicine's Companion Animal Health Fund (CAHF).

While the address is the same as always, the Fund's website has undergone a makeover that makes it easier for visitors to learn more about one of the most successful companion animal health research funds in Canada.

Just click on to the site's categories and read more about the Fund's mandate and history that spans three decades, its annual research grant and training programs, and the people who are part of the Fund's advisory board and management committee.

You can also discover the Fund's brightest moments in companion animal research and meet some of the talented specialists whose training and research work were backed by the CAHF. Plus, you can check out the latest batch of CAHF-supported research projects that are the latest priorities for research teams in the College's veterinary teaching hospital and labs.

Want to catch up on the latest companion animal health news at WCVM? Just click on to "News" and you'll find updates about research projects, WCVM scientists' recent presentations, donor news and more.

Of course, current and past issues of *Vet Topics* are available in PDF format on the site. One great new feature is a search tool that allows visitors to look up specific topics or stories on the entire site without searching through archived issues.

The renovated CAHF site makes it even easier for current and potential donors to contribute by mail, by phone or online to companion animal health research. Just click on "Support CAHF" and learn how you can make a difference! As well, visitors can find out more about the Fund's memorial donation programs for veterinarians, pet owners and friends. We hope you enjoy your visit — and make sure to bookmark www.cahf.usask.ca for future coffee breaks! Comments about the site? Email wcvm.research@usask.ca to tell us what you think!

Check out *Vet Topics* online at www.cahf.usask.ca

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