



Photo by Dr. Cecilia Villaverde

Caring for Animals Injured in California Fires

Dear Friends:

While the recent fires that ravaged parts of Northern California came nowhere near Davis, their impact was felt by all of us. I was truly touched by how our school as a whole rallied together to care for dozens of animals injured in the fires. Our students, veterinarians, and staff worked tirelessly to save animals in the field and to care for burn victims that were brought to the veterinary hospital. Altogether, we treated more than 50 animals, many with severe burns to their bodies. It was a round-the-clock effort, and I felt honored to be part of it.

Most of the animals had become separated from their families, and their local shelters could not provide the level of care that their injuries required. Our hospital made the decision to absorb the costs of healing all of the fire victims—dogs, cats, horses, and more—that came through our doors. Ultimately donors covered these expenses. Students, doctors, and staff volunteered their time not just to treat these animals but to help find their owners as well. Using social media and coordinating with local groups, we were able to reunite many of them with their families—and we continue to work to find new homes for the rest.

While the California fires were an extreme circumstance, the kind of dedication on display during those weeks is something we see at the UC Davis School of Veterinary Medicine on a smaller scale every day—in our basic science research, our teaching efforts, our clinical studies, and our patient care. But this dedication would not be possible without the help of people like you. Your continued support is what enables us to stay on the cutting edge of veterinary medicine, creating new breakthroughs in veterinary knowledge through our research and clinical care.

In this issue, you will learn more about the school's involvement in treating the animals injured in the California fires. We also share the results of a new study looking into the accuracy and adequacy of the information found on the labels of vegetarian diets for dogs and cats. One of its authors, Dr. Jennifer Larsen, reveals the most important information that all pet owners should look for on any pet food label. Finally, we are pleased to highlight the new electronic medical records system—one of the most advanced in the country and a vital tool for researching diseases and managing our patients' health over time. A new revamp of our records system is helping us build the "smart hospital" of today and of the future.

I am proud to be part of this community, and grateful and humbled by the support we get from devoted animal lovers like you. Together, we are saving lives—and changing lives—every day.

My best,

Michael Kent, MAS, DVM

Director, Center for Companion Animal Health

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Study Finds Flawed Claims on Pet Food Labels

Choosing the right food for your pet can be a confusing process, but most of us take it for granted that the information found on pet food labels is always 100 percent correct and accurate. Not so, says Dr. Jennifer Larsen, DVM, PhD, DACVN, associate professor of clinical nutrition with the UC Davis School of Veterinary Medicine's Nutrition Support Service.

Dr. Larsen is one of the authors of a new CCAH-funded study looking at whether vegetarian diets—for both cats and dogs—marketed as “complete and balanced” were providing the levels of amino acids they claimed to contain, and whether these foods were accurately labeled. As it happened, many of them weren't, on both fronts.

Of the 24 vegetarian diets the researchers studied, six did not contain adequate levels of one or more amino acids—organic compounds that play a critical biological function, helping to manufacture proteins within the body. “Some of the diets that were below the minimum levels weren't just a little bit below,” explains Dr. Larsen. “Some were as much as 34 percent lower than what was supposed to be there.” Amino acid deficiency is associated with several animal diseases, including skin diseases and dilated cardiomyopathy, a devastating heart condition.

Vegetarian diets are not the norm for most pets. However, some owners prefer to feed plant-based diets to their animals for ethical reasons, while other pets require non-meat diets due to specific health problems, including bladder stones, some types of liver disease, and food allergies. But these diets can be difficult to balance—which was in part what prompted this study. “When you formulate a diet for a dog or a cat using vegetarian protein sources, you have to be really careful that you're doing it appropriately,” says Dr. Larsen.

The study, which was led by clinical nutrition resident Dr. Kayo Kanakubo with guidance from Dr. Larsen, also looked at the labels on these diets—and what they found there was more surprising. While the rules about pet food labeling can be confusing, most manufacturers follow the regulations set forth by the Association of American Feed Control Officials (AAFCO), which require them to disclose nine different categories of information on their labels, including calorie content and an ingredient list.

Only three of the 24 vegetarian diets that researchers studied had accurate labels that included all nine components. For



“Some of the diets that were below the minimum levels weren't just a little bit below. Some were as much as 34 percent lower than what was supposed to be there.”

– Dr. Jennifer Larsen

example, seven diets had the guaranteed analysis wrong, seven had errors in their ingredient list, and many didn't have feeding directions. According to Dr. Larsen, these inaccuracies could point to a larger and more troubling issue. “If a company does not have accurate or legal labels, then I don't have a lot of confidence that they can handle the many other details required to make a really healthful, wholesome, and safe pet food,” she says.

Even in the best of circumstances, deciphering pet food labels can be daunting. Dr. Larsen's advice to pet owners? Be sure to read what she considers the most important information on any pet food label: the nutritional adequacy statement. “It's often found in tiny type on the back,” she says. “The nutritional adequacy statement tells you for which species and life stage the diet is intended, whether the diet has a complete and balanced claim, and how the company substantiated that claim.”

As for the goals of the vegetarian diet study, “we're hoping to raise awareness for general practice veterinarians to really be cognizant of these issues,” Dr. Larsen says. “It was a successful resident project, so the donors to the CCAH also supported the training of my resident, Dr. Kayo Kanakubo. Hopefully that inspires a future researcher, which makes us even more grateful for CCAH's donor support.”

To read our Q&A interview with Dr. Larsen, please visit www.vetmed.ucdavis.edu/ccah/local-assets/pdfs/larsen_qa.pdf

Emergency Response to California Wildfires

Our school's teamwork saved animals

In September 2015, two massive wildfires ripped through Northern California, both raging less than two hours away from the UC Davis campus. Ultimately, the Butte and Valley fires burned through 150,000 acres, killing six people and destroying 1,500 homes. The fires spread so quickly that many area residents were forced to evacuate with just a few minutes' notice—and, tragically, leave their beloved animals behind.

In the early days of the fire, a team of veterinarians from several entities of the School of Veterinary Medicine—the Veterinary Emergency Response Team, the Center for Equine Health, the veterinary hospital's Large Animal Clinic, and the International Animal Welfare Training Institute—traveled to the fire zones to perform search and rescue missions and care for homeless and hurt animals. They also helped transport many of the most seriously injured animals to UC Davis.

Back at the veterinary hospital, another team of veterinarians, animal health technicians, and students—led by Dr. Steve Epstein, a specialist in the Small Animal Clinic's Emergency and Critical Care Service—worked tirelessly to coordinate treatment for the incoming animals. “We tried to get as much infrastructure in place as quickly as possible, because we had no idea what the total number of animals would be,” says Dr. Epstein. In the end, the hospital treated 56 animals for fire-related injuries, including five chickens, four horses, two pigs, two goats, two dogs, and a rabbit. But the vast majority of the injured animals—40 in total—were cats.

“Most of the cats were dealing with serious burns to their paw pads, requiring daily bandage changes and a lot of nursing care,” Dr. Epstein explains. The sheer number of animals quickly exceeded what the hospital's emergency room could handle, so other areas of the hospital were converted into makeshift care wards. Meanwhile, faculty, staff, and students all rose to the emergency, coming together to handle the influx of patients as smoothly as possible. “We had a phenomenal response from everyone in the hospital,” says Epstein. “Virtually every service ended up taking primary care of a couple of



Owner Quentin Acosta is reunited with “Catsby” after the Butte Fire

cats.” Many volunteered their nights and weekends to care for the animals.

UC Davis quickly established a fund to help pay for the fire victims' treatment, appealing to the public for donations to help defray the cost. Significant press coverage of school's efforts—by *The New York Times*, ABC News, the Associated Press, and many others—helped spread the word about the fundraising effort. So did the school's Facebook page, which received almost a million views during the first week of the fires. Ultimately, the fire disaster fund received \$67,720 in donations.

The press coverage and social media traffic also helped spread the word about the school's considerable efforts to help reunite the injured animals with their owners, many of whom had no idea whether their pets were still alive. These efforts helped reunite 16 animals with their owners, 13 of them via identifications made through Facebook. Unclaimed animals were placed for adoption by shelters in their home counties. All of the cats have been reunited with their owners or adopted by new families.

Everyone involved in the care and treatment of the fire victims learned tremendously from the experience. “It was the first large-scale emergency we've had to deal with,” Dr. Epstein says. Many of those lessons will be embedded in a new set of disaster protocols currently being created for the hospital. “These protocols are being put in place so that, if we have another incident like this, we will be set and ready.”

Doctors, staff, and students working to care for seriously burned cats ▶



Photos by Rob Warren

CCAH Invests in State-of-the-Art Information System

New system will assist researchers to advance animal health

Before joining the UC Davis School of Veterinary Medicine faculty in 2000, Dr. Lynelle Johnson, DVM, MS, PhD, a professor of medicine and epidemiology, conducted most of her research the hard way. “I used to have to physically pull medical records off a shelf, page through them, and write down the different findings,” she recalls. None of the veterinary schools where she worked or studied kept their records in a searchable electronic database, which often made the research process laborious.

“Our researchers use it for 75 percent to 100 percent of their studies, so it’s invaluable for us.”

– Dr. Lynelle Johnson

In 1983, the UC Davis veterinary hospital was among the first in the world to replace its paper files with an electronic medical record system. Since then, that system has grown into one of the largest and most advanced of any hospital in the country, human or animal. “Over the years, we have increased its functionality until now there’s really nothing that can match it,” says Randy Anderson, the school’s director of information technology.

The record system allows veterinarians to track and manage all the data for an individual patient over their entire lifetime, and search hundreds of thousands of records for information that might shed light on a current case or contribute key information to a research project. “It’s our data collection system,” explains Dr. Johnson. “Our researchers use it for 75 percent to 100 percent of their studies, so it’s invaluable for us.”

Now due for an upgrade, the goal is to design a new system that would build on the assets of the existing one yet provide even more cutting-edge clinical, teaching, and research tools and functions.

After considerable planning and design, the creation of a revolutionary new Veterinary Hospital Information System (VHIS)—one that can more easily store the 50,000-plus new records the hospital generates each year—is now underway.



Dr. Lynelle Johnson at work in the veterinary hospital

CCAH has contributed significant funding to the \$2.4 million, 3-year project in support of the CCAH faculty and their commitment to advance animal health.

The new system’s advanced functionality will be well worth the wait. The VHIS will do more than just store medical records, according to Anderson. It will interface with lab equipment, and send out alerts when test results are ready. There will be a client portal where clients can log in and view their pet’s medical records, and another portal for referring veterinarians, which they can use to review records and share medical information back and forth. UC Davis veterinarians and researchers will also be able to access the system 24/7 through mobile devices.

Critically, none of the information stored in the current system—hundreds of thousands of medical records created over a 30-year period—will be lost in the process, which is great news for Dr. Johnson and others. “All of my recent research has some tie to the medical records,” she says. “I wouldn’t be able to do as many studies without it.”

Thank You



Friends of Companion Animals – Honor Roll

(August 1, 2014 – July 31, 2015)

We gratefully acknowledge Friends of Companion Animals members for supporting the CCAH and advancing animal health and well-being. The following benefactors contributed \$1,000 or more, with gifts totaling \$4 million.

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Koret Shelter Medicine Program Helps Daycare for Dogs

The UC Davis Koret Shelter Medicine Program (KSMP) has impact beyond shelters and homeless animals—helping a daycare facility provide a clean and safe environment for its canine clients.

Even though daycare for dogs was an unfamiliar concept in the 1990s, Lauren Westreich recognized the need and opened a daycare haven for dogs in 1997. The facility offers indoor and outdoor play areas, spa services, and boarding. Every Dog Has Its Day Care, located in West Oakland, has flourished and is considered a preeminent facility in the Bay Area, caring for more than 150 dogs daily.

“We treat each and every canine client as though they are our very own. Their safety and well-being is our primary focus,” Ms. Westreich said. **To protect their health, the founder sought the advice of Dr. Kate Hurley, director of the KSMP, for information on state-of-the-art infectious disease control procedures and protocols.** She also sought

“We treat each and every canine client as though they are our very own.”

out other KSMP resources, including the program’s virtual consultation and online library, to help ensure that pets in multi-animal environments have the best and safest facility possible. **When the need for expansion arose, Ms. Westreich again consulted with Dr. Hurley for her expertise during the design of their new 50,000 square-foot facility.**

Every Dog has a core tenet of helping others and giving back. Much effort is devoted to working with employment organizations and schools to provide jobs, training, and internships. Partnerships with rescue organizations have helped dozens of homeless dogs find loving families. These are just a few examples of their good work in the community.

Considering each client a member of the family, Ms. Westreich and her team share in the loss when a beloved pet passes away. In memory, **Every Dog donates a tribute gift to the CCAH Companion Animal Remembrance and Endearment**

(CARE) Fund. This is one way in which Every Dog gives back to the CCAH, since donations help fund research to improve the health of the companion animals they love so much.

To learn more about the UC Davis Koret Shelter Medicine Program, please visit sheltermedicine.com.



Canine clients enjoy playtime activities in one of the 12 play yards at Every Dog Has Its Day Care

New Equipment for Health Studies

This year the CCAH funded over \$130,000 (16 grants)

The following is a highlight

Bioanalyzer

Understanding the genetic bases of hereditary diseases can provide veterinarians and researchers with a key piece of the puzzle in developing treatments. UC Davis researcher Hongwei Liu, for example, is focused on locating the gene responsible for causing progressive retinal atrophy in dogs. But doing so requires the right tool, which the CCAH now has: the Agilent 2100 Bioanalyzer, a highly sensitive and precise instrument necessary for next-generation sequencing. This sequencing requires that DNA be fragmented to certain sizes; the Bioanalyzer provides imaging for DNA fragment size.



The CCAH awarded Dr. Benjamin Sacks, associate adjunct professor in the Veterinary Genetics Laboratory, \$10,000 for the equipment through its inaugural round of research equipment funding in 2014. “The Bioanalyzer is like a

microscope in that it allows us to visualize DNA in a way we wouldn't be able to do otherwise,” Dr. Sacks says.

High-Resolution Manometry Catheter

When people and animals eat, contractions in the esophagus move food and liquid down to the stomach, but esophageal disorders such as inflammation or abnormal dilation can compromise this critical function. UC Davis veterinarians are now employing the ManoScan-ESO, a new high-resolution manometry (HRM) catheter to detect alterations in motility and help diagnose esophageal disorders in dogs, thanks to a \$10,000 grant from CCAH in February 2015.

Dr. Stanley Marks, professor in Medicine and Epidemiology, and Dr. Philipp Mayhew, associate professor in Surgical and Radiological Sciences, consider HRM a major improvement over other diagnostic tools. “HRM is the gold standard for the functional assessment of the esophagus, primarily because it can be done in awake animals while they are eating and drinking,” Dr. Mayhew says. “Anything you do under anesthesia, the drugs are likely to affect motility and change the pressure profile of the esophagus. This is the best thing you can do to get a real sense of functional characteristics of the esophagus.”

New CARE Program

Did you know?

A memorial or tribute gift is a wonderful way to pay honor to a special pet, friend, or family member. We frequently receive heartfelt notes of appreciation after receiving notification of these loving tributes. The Center for Companion Animal Health has a fund to receive these special gifts called the Companion Animal Remembrance and Endearment (CARE) Fund to provide support for programs at the CCAH.

Simply send us the name of the pet or person that you would like to honor and the name and mailing address of the person to be notified in the envelope enclosed in this newsletter. We will send a personalized notification sharing the news of your gift (the gift amount is not revealed). Memorial and tribute gifts may also be made online at: www.vetmed.ucdavis.edu/go/ccah_care.



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Planning for the Future and Leaving a Legacy

You don't have to be wealthy to make a significant gift. Sharing a commitment to animals are philanthropic partners of the school, many of whom have chosen to express their dedication through their estate plans.

Estate gifts create enduring impact. Donors are remembered well after their lifetimes for making a difference in the health of animals. For example, through his estate, Paul O' Bannon left \$30,000 to the Center for Companion Animal Health Feline Health Endowment, helping cats enjoy healthier and longer lives. Marianne Oaks, inspired by her passion for animals, left an estate gift of \$21,000 for research to improve the health and well-being of Dalmatians.

Grateful for their thoughtful generosity, the school honors



donors, who have arranged for a planned gift, through the Heritage Society for Animals. Each year, new members are welcomed during a reception held in spring. Growing in number, the society's membership now totals to nearly 750.

Estate preparation does not need to begin late in life—foresight and generosity today can make a significant impact on the well-being of animals in the future. Estate planning options include bequests made through wills, revocable living trusts, and life income agreements such as charitable remainder trusts and gift annuities.

For more information about joining the Heritage Society for Animals and exploring the benefits planning for an estate gift, contact the Office of Development at (530) 752-7024.

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The CCAH is dedicated to advancing studies in veterinary medicine—encompassing new ways to prevent, diagnose and treat diseases including cancers, genetic and immune disorders, infectious diseases, kidney and heart diseases, and nutritional disorders in companion animals. We welcome visitors to come and learn more about our mission and programs. To schedule a visit, please call (530) 752-7295.

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