

 **UC DAVIS**
VETERINARY MEDICINE



Cardiology Service Continues Work with Feline Disorder

The most common form of feline heart disease is hypertrophic cardiomyopathy (HCM), which results in thickening of the walls of the heart ventricles, interfering with the flow of blood, and leading to sometimes fatal consequences. This same heart disease can also be found in humans, and is often the cause of death when a young, seemingly healthy athlete dies on the playing field.

HCM affects approximately one in 500 people and was recently reported to affect a startling one in seven cats. More than 1,500 genetic mutations have been associated with the disease in humans, which creates challenges for researchers. However, veterinary scientists are making breakthroughs since the cat population is less diverse and has higher incidence of disease. Not only does this collaboration help human research, it makes strides in treating cats with the disorder.

UC Davis' Dr. Josh Stern, chief of the veterinary hospital's Cardiology Service, has been studying HCM for years and is currently treating many cats with the disease.

"This disease of the heart muscle is often clinically silent without any indication that a cat might harbor this condition, similar to how it manifests in humans," said Dr. Stern. "Ultimately some cats go on to develop severe consequences like congestive heart failure and sudden cardiac death."

Currently, there is no cure for HCM in cats, but the genetics research is helping to develop better treatment options. Medications are typically utilized that aim to prevent blood clots, improve blood flow and control heart rate.

"We are working to understand how the genetics of a cat might impact their response to drug therapies commonly used to treat these conditions," Dr. Stern said. "We are investigating the genetics of blood clot formation in these cats, prevalence and relevance of cardiac arrhythmias, and response to commonly used medical therapies. Finally, we are very excited about an ongoing project investigating the response to a novel drug therapy that could ultimately slow or even reverse the disease progress."

Advanced Training Program Makes Worldwide Impact

Beyond providing clinical training to DVM students, the UC Davis veterinary hospital also plays an important role in training veterinarians to become board-certified in a specialty field. The veterinary hospital's house officer program, which offers residencies, internships and fellowships, is the largest of its kind at any veterinary hospital in the country, and is known the world over.

The program routinely attracts candidates from all corners of the globe. Its current makeup consists of veterinarians from 19 foreign countries (on six continents) and 21 states. Since 2010, it has drawn participants from 32 countries and 39 states, as well as the District of Columbia and Puerto Rico.

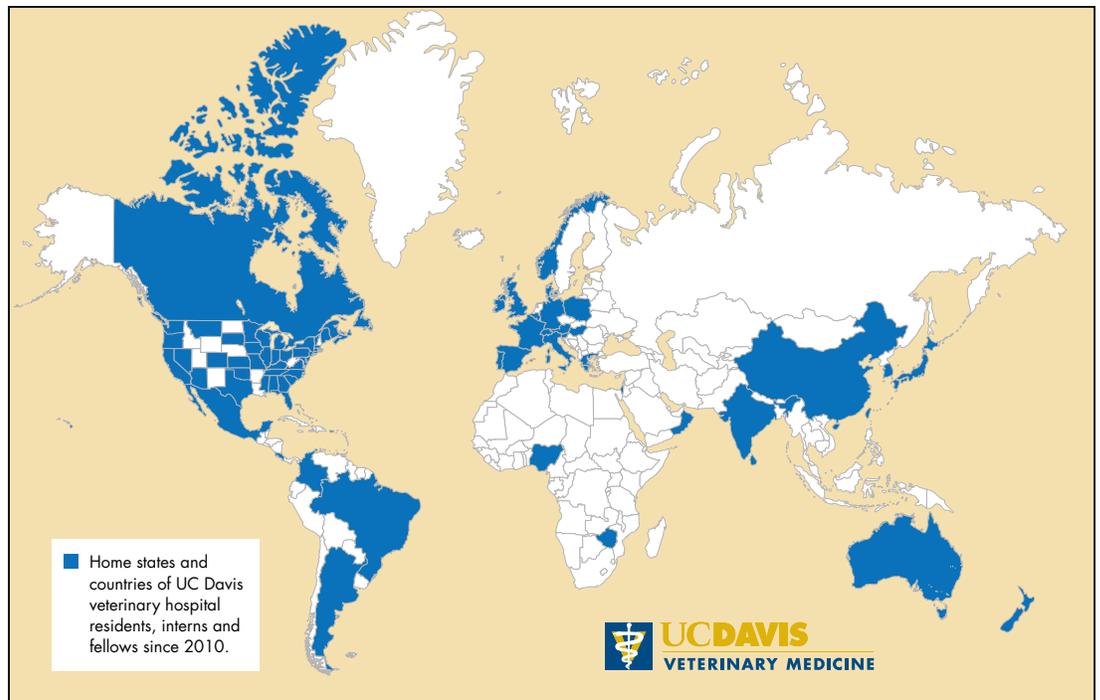
"There isn't a week that goes by where we don't get an inquiry from an international veterinarian wanting to train at UC Davis," said House Officer Coordinator Nicole Adams. "Our reputation for providing world-class training is known on every continent it seems."

The hospital annually sees more than 50,000 patients, and nearly every one of those appointments is an opportunity for house officers to hone their skills.

"The large caseload plays such an important role in our residency," said Dr. Marcos Perez-Nogues, a first-year equine surgery resident from Spain. "It would take more than twice as long to see this many cases at a hospital in Spain."

Third-year neurology/neurosurgery resident Dr. Jessica Rivera agrees. "The caseload for both medical and surgical neurology, as well as the constant guidance from our faculty, have played a tremendous role in the knowledge I have acquired and my comfort level with both seeing numerous cases and my surgical experience."

The house officer program currently trains 109 veterinarians – 99 residents, seven interns and three fellows. Their one- to four-year appointments provide opportunities in 34 specialty disciplines (more than any other veterinary hospital),



Since 2010, the hospital's house officer training program has drawn participants from 32 countries and 39 states, as well as the District of Columbia and Puerto Rico.

including cardiology, dairy production medicine, oncology, radiology, dentistry and oral surgery, anatomic pathology, dermatology, marine mammal medicine, ophthalmology, livestock medicine, zoological medicine, and behavior.

In addition to hand-on advanced clinical training, the program also provides additional educational and research opportunities. Many house officers are required to complete a research study during their time at UC Davis, and present that project at the annual Gerald V. Ling House Officer Seminar Day in March where dozens of veterinary research projects are showcased to fellow house officers, faculty, staff, students and guests. Some residency positions include degrees built in to the completion of the program. Dr. Yehonatan Berkowic, a second-year resident from Israel in the Livestock Herd Health and Reproduction Service (LHHR), is currently completing his Master of Preventive Veterinary Medicine (MPVM) degree. All LHHR residents suspend clinical responsibilities in their second year to pursue the MPVM.

"The MPVM is one of the main reasons why I came to UC Davis," Dr. Berkowic said. "In Israel, I was treating a lot of sick cattle, but we weren't doing much to prevent illnesses."

When he finishes his residency, Dr. Berkowic plans to return to Israel where he has a position waiting for him, and where he will be, to his knowledge, the country's only board-certified veterinarian in theriogenology (reproduction). He hopes his three-year residency—and his MPVM—will allow

him to help other Israeli veterinarians focus on preventive medicine to improve livestock health.

“It’s important we include international veterinarians in our house officer program,” said Dr. Jane Sykes, chief veterinary medical officer of the UC Davis veterinary hospital. “By doing so, we are not only improving veterinary medicine in California, but we are playing a part in raising the quality of veterinary care throughout the world.”

Dr. Perez-Nogues also hopes to bring his veterinary knowledge back home one day, where he can help future veterinarians become equine experts.

“Ideally, I would like to work in private practice for five to 10 years as an equine surgeon,” said Dr. Perez-Nogues. “That should provide me the time necessary to see just about any case possible. Once I reach that level, I plan to return to Spain and teach veterinary medicine.”

After studying abroad in Japan and Australia as an undergraduate at Penn State University, Dr. Rivera may once again be living overseas soon, as she is currently interviewing for a position in Hong Kong.

“The opportunities that this residency has opened up for me make for a very exciting future,” Dr. Rivera said.

Featured House Officers

Dr. Kanae Takada is participating in a one-year internship in Renal Medicine and Hemodialysis. She hails from Japan, where hemodialysis is offered at several veterinary facilities, but advanced training in the specialty is extremely limited. She plans to pursue a residency in the U.S. or Canada following her internship, and possibly bring that experience back to Japan someday.



Dr. Kanae Takada

Dr. Yehonatan Berkowic looks forward to returning to Israel and implementing preventive medicine practices he is learning as part of his residency with the Livestock Herd Health and Reproduction Service. He graduated from Israel’s only veterinary school, the Koret School of Veterinary Medicine at Hebrew University of Jerusalem. The school has a long-standing connection to UC Davis (whose shelter medicine program is also supported by, and named after, the Koret Foundation). Many of Dr. Berkowic’s professors at Koret were trained at UC Davis, and encouraged him to apply for the residency program.



Dr. Yehonatan Berkowic



Dr. Pablo Espinosa



Dr. Marcos Perez-Nogues



Dr. Albert Torrent-Crosa

Drs. Pablo Espinosa, Marcos Perez-Nogues, and Albert Torrent-Crosa are all from Spain. The three equine surgery residents came to UC Davis because of its esteemed reputation of being one of the best equine services in the world. Advanced training opportunities are minimal in Spain, as there are only a handful of board-certified surgeons in the entire country. These three hope to add to that number.

Dr. Jessica Rivera, a first generation American whose parents emigrated from El Salvador, was born and raised in New Jersey. As an undergraduate at Penn State, she was a recipient of the Bill Gates Millennium Scholarship – a full scholarship for minorities based on academic merit. She and her two younger brothers were the first in her family to go to college. Following graduation, she went on to complete veterinary school at the University of Florida. Dr. Rivera is completing a residency in the Neurology/Neurosurgery Service.



Dr. Jessica Rivera

Dr. Alessia Cenani is from Italy and is in her third and final year of her residency with the Anesthesia/Critical Patient Care Service. During an anesthesia internship at the University of Pennsylvania, she trained under several veterinarians who were trained at UC Davis and encouraged her to apply for the residency. Because specialized veterinary opportunities (such as her advanced knowledge in anesthesia) are extremely limited in Italy, her immediate future will be best served continuing to practice in the United States. Her chosen career path in academia will be enhanced by her upcoming Research and Education in Advanced Clinical Health Fellowship at UC Davis next year. Someday, she would like to see things change in Italy with regards to so few opportunities in specialized veterinary medicine, possibly even utilizing her academic skills to be part of the future in Italy to lead those changes.



Dr. Alessia Cenani

Hospital Increases Examination Space for Exotic Services

The Companion Exotic Animal Medicine and Surgery Service will soon see a much-needed expansion of their workspace. Three new examination rooms will be constructed in existing space adjacent to their current location in the hospital. The project will greatly enhance the service's capabilities for treating patients and provide dedicated examination space necessary for the best possible quality of exotics care.

The new space will be configured in ways to create positive workflow environments, allowing for different set-ups consistent with the differences in exotic patients. With the service seeing animals that weigh only a few ounces to animals that weigh a few hundred pounds, it's important for the team to be able to examine those animals in spaces that allow for a variety of configurations. The location of new space will also make for easier transport of larger patients that may need help from the parking lot to examination rooms.

With new space, comes new equipment, as the service will implement the use of computers on wheels (COW) workstations to enable working in limited or restricted spaces, such as areas across the room that may not be accessible to a clinician if the computer is stationary or when a larger patient (e.g. 200-pound tortoise) is in the room. The COWs will allow clinicians the ability to quickly access vital patient information in an immediate manner.



New examination space will greatly enhance the capabilities of the Companion Exotic Animal Medicine and Surgery Service.

Currently, the service has only one dedicated examination space and utilizes shared space with other services. This can pose a problem, for example, if the previous patient (a dog) leaves a scent that may cause stress to the next patient (a rabbit that may feel threatened by a dog). Having more dedicated space for exotics will create safer environments for all these patients, many of whom are prey animals in the wild and scare easily.

“Pet owners are expecting the same level of care for their exotics as is available for their dogs and cats,” said Dr. Michelle Hawkins, chief of the Companion Exotic Animal Medicine and Surgery Service. “Our ability to provide care for exotics has grown tremendously over the last 20 years. This addition to our service will significantly contribute to the high quality care all of our patients deserve.”

A portion of this expansion was provided by the Richard M. Schubot Parrot Wellness and Welfare Program, which is dedicated to supporting resources, education and clinical care of companion parrots, providing optimal quality of life and disease prevention and treatment. This type of expansion is an important component of the school's vision for the future of the hospital, looking toward a state-of-the-art Veterinary Medical Center. The new space is anticipated to be completed by November.

Ultrasound Enhances Livestock Medicine

The use of ultrasound, both in-house and in the field, has increased the level of care and productivity of the hospital's livestock services. Either by utilizing the Large Animal Ultrasound Service or performing their own ultrasound examinations, livestock clinicians are able to enhance service offerings to clients, quickly discovering the root of some injuries or illnesses.

In the Livestock Medicine and Surgery Service, ultrasound is used daily to assist with diagnosis of a range of conditions. The imaging can achieve simple tasks such as a better look at an abscess before draining, or more advanced tests like

performing complete abdominal scans to help clinicians decide whether or not to take an animal to surgery. The service recently acquired a new ultrasound machine with advanced image quality and other capabilities such as color flow Doppler which will allow clinicians to examine vessels and hearts more thoroughly.

The Livestock Herd Health and Reproduction Service, which travels to ranches and breeding operations to more easily treat large herds, routinely uses portable ultrasound units to perform pregnancy diagnosis in the field. In its treatment of cows, sheep, goats and pigs, the service performs transrectal

Comparative Ophthalmic Imaging Laboratory Opens

The Comparative Ophthalmic Imaging Laboratory (COIL), a diagnostic imaging facility created to support the hospital's Ophthalmology Service, has opened adjacent to the service's examination rooms. The new, multi-functional space strengthens facilitation of clinical trials, escalates the level of equipment and increases clinical examination space, all contributing to the enhancement of patient care and student and client education.



Sheri Pendergraft, RVT, and Dr. Lionel Sebbag examine Max in the new Comparative Ophthalmic Imaging Laboratory.

COIL features new, cutting-edge equipment used in both clinical trials and patient care. New to the service will be an in vivo confocal microscopy unit used to examine cells and nerves of the cornea. Only a handful of veterinary schools throughout the country have one. Other new equipment includes: a table-mounted digital slit lamp (which enhances capabilities for student and client education

by showing patient's eyes in real time); an optical coherence tomography unit (which shows cross-sectional imaging of the cornea and retina); an ultrasound pachymeter (which measures corneal thickness); light-tight interior room used to perform electroretinograms (which require complete darkness); larger, more comfortable holding space for dogs; and a dedicated mobile anesthesia cart.

The images acquired at COIL will not only aid diagnosis and management of clinical patients but

will facilitate owner education to help them make informed decisions regarding their animal's ocular health. COIL will also present a novel education platform for students and residents by acting as a bridge for discovery between the UC Davis Schools of Medicine and Veterinary Medicine, facilitating a collaboration of innovative research.

and transabdominal ultrasounds nearly every day in its reproductive work and to detect diseases like early pneumonia or to discover evidence of inflammation or infection and chronicity of diseases. Early detection of diseases can change the entire future for a calf in terms of its susceptibility to disease and how it will perform throughout life.

Clinicians and students with the Livestock Herd Health and Reproduction Service utilize portable ultrasound to perform an examination on a cow. ▶



UC Davis Neurologists Help Dog Regain Mobility

Leah, a 4-year-old female border collie, got loose from her owner and went missing for the night. When a local veterinary facility found her the next day, they immediately called her owner and informed her of Leah's injury – a facial laceration that they suspected was the result of a deer kick. Otherwise, she was alert, ambulatory and normal. Her wound was repaired, and Leah was on her way home. Two days later, however, Leah became acutely non-ambulatory. She had minimal motor function in all four limbs, and was unable to sit up on her own.

Leah was then hospitalized with a suspected case of tetanus, a bacterial disease that can severely affect the nervous system. She was treated with an anti-toxin and other supportive care and monitored. Her severe tetraparesis (weakness in all four extremities) did not improve for three weeks. Leah's veterinarians no longer suspected tetanus and were much more concerned for a spinal cord injury, so they referred her to the UC Davis veterinary hospital.

Once at UC Davis, specialists in the Neurology/Neurosurgery Service performed a CT scan and an MRI to determine the

cause of Leah's condition. She was diagnosed with an atlanto-occipital luxation (dislocation of the skull from the spine) and fractures of the first vertebra and the back of the skull. These injuries were compromising her spine, causing temporary paralysis.

Faculty neurologists Drs. Pete Dickinson and Karen Vernau, along with neurology resident Dr. Devin Ancona, attempted to reduce the luxation via both closed (non-surgical) and open (surgical) approaches. Both attempts were unsuccessful, however, due to the amount of fibrous tissue that had built up in the three weeks of healing since the initial injury. Therefore, surgery to decompress Leah's spinal cord was necessary.

An incision was made behind Leah's skull to allow the neurosurgeons access to her skull and vertebrae. They drilled away the top of Leah's first vertebra and a small area of the back of her skull, necessary to open that area and decompress the spinal cord. Following the successful surgery, Leah recovered for the night in the hospital's Intensive Care Unit, where she received individual monitoring from specially-trained technicians. It was important Leah remain on strict rest without turning or twisting her head overnight. She was moved to the Intermediate Care Ward (ICW) after an uneventful night of rest and recovery.

After two days of recovery in the ICW, where she showed voluntary motor function in her limbs, Leah was transferred to the neurology ward where she continued to improve. By the time Leah was discharged the following day, she was able to support herself lying sternally. Leah's owner took her home with instructions of strict cage rest and a physical rehabilitation plan with the Integrative Medicine Service once Leah was neurologically stable.

At Leah's one-month recheck appointment, she had improved significantly and was able to stand without support and take a few steps. She was still considered non-ambulatory given her inability to remain standing and walk without falling, but her improvement over the previous four weeks was suggestive of a positive prognosis for return to ambulation. She was "green lighted" to begin physical rehabilitation with the Integrative Medicine Service.

Following two weeks of physical rehabilitation, Leah was walking on her own. She gradually improved with continued rehabilitation over the next month, and is now rehabbing at a facility closer to home.

◀ UC Davis neurologists helped Leah regain mobility after being paralyzed for three weeks following a suspected deer kick to her head.

MAY CASE OF THE MONTH – LEAH



UC Davis Helps Horse Owner with Difficult Foaling Process

Ceilki, an 8-year-old grey Arabian mare, had been pregnant three times before coming to the UC Davis veterinary hospital last year. In 2012, Ceilki (pronounced “silky”) miscarried early in her second pregnancy. In 2014, she had a dystocia in her third pregnancy and delivered a dead foal after a difficult delivery. After the dystocia, a mass was found on the floor of Ceilki’s pelvic canal, which was believed to cause the dystocia.

The mass was suspected to be a melanoma, a common tumor in grey horses such as Ceilki, and was in an inoperable position, but Ceilki’s ability to carry a healthy fetus was not compromised. After consulting with her veterinarian—who recommended Ceilki be foaled out at a hospital during her next pregnancy—owner and Arabian breeder Sara Bagg decided to breed her mare again, and have Ceilki give birth under the watchful eye of UC Davis’ Large Animal Clinic.

In January 2015, Ceilki was approximately 315 days into her pregnancy and was brought to UC Davis. The mare was placed on foal watch, and the 24/7 team of veterinarians, technicians and students were ready to assist with her impending foaling. The team’s intent was to see if she could give birth naturally, but be ready to perform a cesarean section, if necessary, to save the foal if there were any problems during delivery.

Overnight going into her 12th day of hospitalization, Ceilki was noted to be sweating, agitated, pawing and restless. The next morning, she was examined – an ultrasound was performed to evaluate the mare and fetus, and tests were performed to determine if Ceilki was close to foaling. Equine specialists in surgery, internal medicine, anesthesia, and reproduction met to finalize a plan with Bagg. Later that day, Ceilki began foaling, but the foal was being delivered backwards and the umbilical cord was compromised. The mare was immediately taken to surgery where the foal—a colt named Helios—was delivered by cesarean section.

The anesthesia and surgery were free of complications. Following the delivery, Ceilki and Helios were brought to the hospital’s Lucy Whittier Neonatal Intensive Care Unit. They were hospitalized for 18 days post-birth, until both mare and foal were able to be discharged.

The total rehabilitation period following a cesarean section is approximately three months, so Ceilki was sent home with a

JUNE CASE OF THE MONTH – CEILKI AND HELIOS



UC Davis equine specialists performed a cesarean section on Ceilki to avoid complications while foaling Helios.

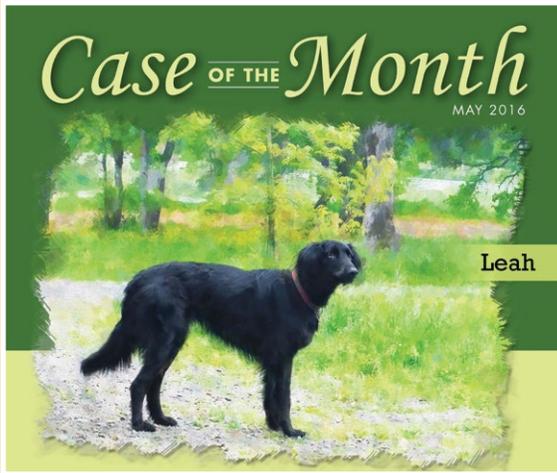
recovery plan. Her first month post-surgery was to be spent on stall rest while the abdominal incision healed, and was allowed brief, twice daily hand walks. This continued into the second month with the addition of access to a small turnout area adjacent to her stall. Finally, in her third month of recovery, Ceilki was allowed access to a pasture. Now, more than a year post-surgery, she is back to normal, and Bagg is considering bringing her to UC Davis next year to breed her again, this time utilizing the school’s embryo transfer process and avoiding future risk of dystocia from the persistent mass in her pelvic canal.

As for Helios, he’s now a yearling that is enjoying his new sporting life, competing in the junior colt division of halter.

“He’s very athletic and just as happy as could be,” said Bagg, who has been breeding Arabians for more than 30 years, and has owned horses since she was 11 years old. “I just absolutely love them. When I was a kid, I used to go to summer camp just so I could ride horses.”

“I cannot tell you how great everyone at UC Davis was throughout this whole process,” Bagg continued. “We’re so thankful Ceilki was able to have a successful pregnancy, and are thrilled to welcome Helios into the family.”

Did You Know?



The May "Case of the Month" feature attracted national media attention.

... that some long-time hospital staff members are retiring? Janette Barrango, Teri Joseph, Frank LaBonte, Michael Manzer, Bill Merfy, Barbara Stewart, Mimi Sudbury and Colette Williams will all soon be moving on. We thank them for their dedication to the hospital and for playing a large role in our success over the years.

... that Cheryl Stafford recently won the 2016 Disability Awareness Recognition Award? The campus award honors employees for providing accommodations for people with disabilities, so that the disabled employees may continue working. Congratulations, Cheryl!

... that the Neurology/Neurosurgery Service was recently highlighted extensively in the news? Their outstanding work in helping Leah (May "Case of the Month") walk again was covered by all four local newscasts, as well as national CBS and FOX News and major national veterinary magazines.

Featured Clinical Trial

Drs. Lynelle Johnson and Lucy Kopecny are recruiting kittens with acute upper respiratory tract disease for a new clinical trial. The trial aims to evaluate the utility of a new technique in hopes of identifying a role for bacteria and viruses, and assess the efficacy of famciclovir in combination with standard therapy and an antibiotic for treatment of upper respiratory tract disease. Owners are encouraged to enroll any kitten with acute upper respiratory tract disease that is displaying signs of sneezing, ocular or nasal discharge for less than three weeks and has not received prior treatment. For more information about this and other groundbreaking trials, visit www.vetmed.ucdavis.edu/clinicaltrials or email vetclintrials@ucdavis.edu



CE Calendar

Veterinary Continuing Education

(530) 752-3905, Fax: (530) 752-6728, tweddale@ucdavis.edu

Upcoming Veterinary Continuing Education Events:

- July 23-24 Back to School Seminar, UC Davis
- September 24-25 Fall Festival, UC Davis
- October 23-27 Explorer Series, Milan, Italy
- November 6 Feline Forum, UC Davis
- January 7-8 Winter Conference, UC Davis
- January 27-29 MATS: Clinical Cardiology, San Diego
- January 28 Heumphreus Memorial Lecture, UC Davis

For more information on these and other upcoming CE events, please visit www.vetmed.ucdavis.edu/ce.

Connect with us

For Appointments Call:

Small Animal Clinic: (530) 752-1393

Large Animal Clinic: (530) 752-0290



Like us on Facebook

<https://www.facebook.com/ucdavisvetmed>



Watch us on YouTube

<http://www.youtube.com/ucdvetmed>



Follow us on Twitter

<http://twitter.com/ucdavisvetmed>



Follow us on Instagram

<https://www.instagram.com/ucdavisvetmed>

www.vetmed.ucdavis.edu/vmth

To subscribe to VMTH Heartbeat, email rjwarren@ucdavis.edu

Please consider supporting UC Davis Veterinary Medicine
www.vetmed.ucdavis.edu/development