



Advancing Patient Care

From lions to guinea pigs, the UC Davis School of Veterinary Medicine is equipped to handle the most complex surgical procedures that veterinary medicine has to offer. With an extensive teaching hospital in Davis and satellite clinics in Tulare and San Diego, the School provides services throughout the state. The Davis-based Veterinary Medical Teaching Hospital consistently ranked at the top among all academic veterinary hospitals in reputation and patient visits, cares for 45,000 patients per year through 34 specialties. Animals in Southern California receive care in one of four specialty services at the UC Veterinary Medical Center in San Diego and the Tulare-based Veterinary Medical Teaching and Resource Center provides food animal herd health.

CANCER TREATMENT—A TrueBeam Linear Accelerator allows UC Davis to offer the most advanced radiotherapy treatments anywhere in veterinary medicine. Radiation oncologists can deliver more powerful cancer treatments with pinpoint accuracy and precision. Faster treatments offer greater patient safety by shortening anesthesia and improving precision by leaving less time for tumor motion during dose delivery.

INNOVATIVE BIOTECHNOLOGY —The Dentistry & Oral Surgery Service (DOSS) in partnership with the UC Davis Translating Engineering Advances to Medicine (TEAM) Prototyping Facility in the Department of Biomedical Engineering, is now able to print a 3-D model based upon a CT scan. The end result is an exact, to-scale replica of a patient's skull, allowing surgeons to accurately determine the extent and location of an injury or mass, see how close lesions are to vital structures such as the brain, and determine the potential consequences of making an incision into a particular area of the patient's skull.

RAPID ID TEST IN MICROBIOLOGY—The matrix-assisted laser desorption/ionization time-of-flight (MALDI-TOF) mass spectrometer is embraced throughout the healthcare community as the most advanced diagnostic tool for rapid identification of organisms. This highly-advanced piece of diagnostic equipment reduces the time for identification of bacterial and fungal organisms, after they have been grown in culture, from 2-4 days down to less than one hour. This significantly shortens the time required to initiate patient care/treatment.

LIFE-SAVING SURGERY—Pioneering interventional radiology treatments hold tremendous potential in the diagnosis and treatment of veterinary patients with cancer and a number of other life-threatening conditions. These new treatments are minimally-invasive and innovative surgical techniques offered by the teaching hospital's Soft Tissue Surgery Service are successfully used to treat a myriad of diseases.

HEMODIALYSIS—A new state-of-the-art procedure called therapeutic plasma exchange (TPE) has been used to treat more than a dozen dogs and one horse through the Hemodialysis and Renal Medicine Service. TPE removes impurities from blood plasma such as antibodies, toxins or abnormal proteins and exchange donor plasma to render the patient less susceptible to or free from immunologic attack or other pathologic

processes. Our treatment in a horse, conducted in May 2013, was one of the first known TPE applications in this species.

CUTTING-EDGE CLINICAL TRIALS—With more than 40 ongoing studies to date, the Veterinary Center for Clinical Trials leads the nation in advancing medical care for animals, and in some cases, humans. Trials include pain management in cats, auto-immune diseases in specific dog breeds, and assessing stem cell therapy treatment in horses with recurrent uveitis (an eye disease).

NOVEL BONE RECONSTRUCTION—Working with colleagues in biomedical engineering, veterinary clinicians have adapted biomedical technology to regrow jaw bones in dogs that have lost bone to injuries or removal of tumors. To date, 17 dogs (and one bearded dragon) have undergone this novel reconstructive procedure that promises to provide valuable information for biomedical treatments in human medicine as well.

ULTRASOUND EXPERTISE—In addition to lameness and fracture evaluations, our world renowned Large Animal Ultrasound Service has conducted more than 325 complex pelvic ultrasound examinations since 1999.

ZOOLOGICAL MEDICINE AND SURGERY—From endangered Sumatran tigers to a flock of flamingos, the Zoological Medicine Service provides veterinary care to animals at the Sacramento and Mickey Grove Zoos. Last year, UC Davis veterinarians examined 563 individual animals (of 161 species) at the Sacramento Zoo.

CARDIOLOGY—UC Veterinary Medical Center—San Diego offers an array of specialty services and emergency care for the region including interventional cardiology such as angiography, pacemaker implantation and balloon valvuloplasty. The center also offers expertise in nutrition, urology/nephrology/hemodialysis, and clinical pharmacy.

RUMINANT HEALTH—The Veterinary Medical Teaching and Resource Center (VMTRC) in Tulare provides clinical services to 9 dairy farms (a total of more than 36,000 dairy cows and calves) and one large calf ranch (approximately 80,000 cattle). By offering expertise in nutrition, animal welfare, disease prevention and management, reproduction, herd management and food safety, the school addresses societal needs and improves animal and public health.

NEUROLOGIC DISEASE—A variety of neurological diseases can affect animals in areas of their brain, inner ear, spinal cord, and vertebrae, as well as diseases affecting muscles, nerves and the neuromuscular junction (neuromuscular disease). The Neurology/Neurosurgery team of board-certified neurologists and resident veterinarians provide diagnostic testing, medical care, and surgery for dogs and cats, as well as a consultation service for horses, livestock, exotic species and laboratory animals.

STEM CELL THERAPY—Regenerative medicine techniques, including the use of adult stem cells, is being utilized to treat tendon and ligament injuries in horses and dogs at the VMTH. Racehorses that once would have been euthanized with these injuries may now be given a second lease on life. The school's veterinary

researchers continue to explore novel applications of stem cell therapies to find new cures for injuries and diseases, both in veterinary and human medicine.

SAVING LIVES OF SHELTER ANIMALS—Launched in 2001, the Koret Shelter Medicine Program was the first of its kind in the world to concentrate on disease prevention in animal shelters. By using veterinary science to protect the health of shelter animals, more of them survive to find lifelong homes. The program recently developed the UC Davis Virtual Consultant, a free online self-evaluation tool for shelter staff, veterinarians, and volunteers world-wide, to improve the well-being of shelter animals and to assess a shelter's policies, practices and procedures.

OPHTHAMOLOGY—The teaching hospital's Ophthalmology Service provides advanced diagnostics, as well as routine, complex and emergency medical and surgical care to all patients (dogs, cats, horses, birds and other exotic species) with a variety of ocular disorders including cataracts, corneal transplants, and radiation therapy for tumors.

VETERINARY NUTRITION—Not every cat and dog have the same nutritional needs. The Nutrition Support Service at the VMTH offers commercial diet recommendations, critical care nutrition, customized weight loss programs and nutritional consultation for metabolic diseases. Veterinary nutritionists work closely with medical and surgical colleagues to evaluate and formulate therapeutic diets to further support critically ill animals on the road to recovery.

BEHAVIOR—Board-certified specialists and residents in the nation's largest veterinary behavior program address problems such as: aggression; separation anxiety; house soiling; urine marking; fears and phobias; as well as species-specific problems, such as feather-picking in birds. Humane behavior modification techniques are adapted from the fields of applied animal behavior and veterinary medicine, and applied to help owners solve their pets' problem behaviors.

EXOTIC ANIMALS—The teaching hospital's Companion Exotic Animal Medicine & Surgery Service treats multiple types of interesting species, ranging from raptors, rabbits, birds, snakes, turtles, frogs, lizards and much more. All clinicians are board-certified in zoological medicine.