



**VMTH surgeons have made great strides with minimally invasive surgeries by utilizing Interventional Radiology.**

## VMTH Pioneers Interventional Radiology

As advances in veterinary medicine continue to improve the way we care for our patients, surgeons at the VMTH are playing an important role in leading that charge. Several minimally invasive and innovative techniques, collectively included under the specialty of Interventional Radiology (IR), were pioneered at UC Davis, and are now being utilized by other veterinary specialists around the world. The diseases that can be treated with the use of IR are constantly expanding, and—spearheaded by surgeons Dr. Bill Culp and Dr. Michele Steffey—the VMTH is leading the way in these therapies.

“Being one of the largest veterinary hospitals and research facilities in the world, it is important for us to be a leader in the field of Interventional Radiology,” states Dr. Culp. “We are extremely proud of our IR program and the advances that we have made over the last several years. We are continually striving to improve our program with the goal of advancing the level of care that we can provide to patients.”

IR techniques—which utilize specialized equipment such as guidewires, catheters, balloons, and stents to treat a myr-

riad of diseases—hold tremendous potential in the diagnosis and treatment of veterinary patients with cancer and a number of other life-threatening conditions. IR has several important advantages over conventional techniques, including the minimally invasive nature, quicker recovery times in many cases, and the complementary role that it can play with other treatments. As the IR specialty continues to develop in veterinary medicine, research supporting these treatments is emerging at a rapid pace. UC Davis is at the forefront of this research and several clinical trials are underway to thoroughly evaluate the effectiveness of an ever-expanding array of IR techniques.

One of the most important aspects of IR, though, is that it often offers an option for cases that previously have lacked options. “These new innovations have the potential to greatly improve the quality of life of our patients,” adds Dr. Culp. “Our goal is to continue to improve and refine these techniques to benefit both our patients and veterinary medicine as a whole.”

Learn more about the Interventional Radiology options available at the VMTH at <http://bit.ly/YtOrUi>.

## Dental & Oral Surgery Service Utilizes 3-D Printing Technology

Recently, the Dentistry & Oral Surgery Service (DOSS) at the VMTH partnered with the UC Davis Translating Engineering Advances to Medicine (TEAM) Prototyping Facility in the Department of Biomedical Engineering to create a cutting-edge teaching and clinical tool that will help make maxillofacial surgeries safer and easier for clients to understand. With the TEAM Prototyping Facility's assistance, DOSS 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.

"It's one thing to study a CT image on screen—we learn a tremendous amount about a patient that way," states Dr. Frank Verstraete, Chief of DOSS. "But to be able to hold a replica of that same image in your hand and see exactly what your patient's skull looks like takes the experience to a completely different level. The advantages of that are tenfold compared to a screen image."

The replicas allow 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. In the case of DOSS's groundbreaking jawbone regrowth trials, this new technology allows oral surgeons to accurately determine the size and shape of the plates that will be needed for the surgery, before the procedure begins. This ability to plan in advance greatly reduces the duration of surgeries, diminishes amount of time the patient is under anesthesia, and improves patient safety and outcome.

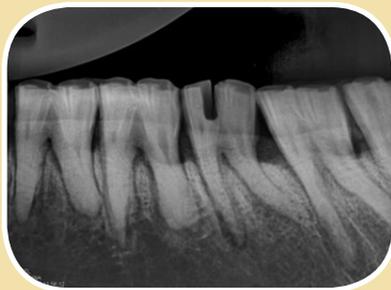
"One of the things I appreciate the most about the replicas is that it helps us to better explain the situation to our clients," states VMTH oral surgeon Dr. Boaz Arzi. "If I bring this skull replica to the waiting room and let the clients see the exact injury or disease affecting their pet, they gain a much better understanding, and acceptance, of the recommended procedure. I have received many positive responses from clients who are excited that this technology exists, and that they are better able to understand the treatment plan for their pet."

"The technology for this has existed since the 1980s," states Steven Lucero, mechanical engineer and TEAM Prototyping Facility manager. "But we've only seen it emerge into clinical practice in the last few years, as many of the patents on this technology are expiring and the marketplace is becoming more competitive as a result. Consequently, we're finally getting to see the great benefits that can come from this technology."

This collaborative effort between DOSS and the TEAM Prototyping Facility is a great example of the advances in patient care that can be achieved and the cutting-edge clinical programs that can be developed through a multi-disciplinary approach.



VMTH oral surgeons are now able to utilize 3-D printing to create exact replicas of their patients' skulls.



This intra-oral radiograph shows a mandibular cheek tooth being sectioned in half in order to extract it due to a divergent root.

## Equine Dentistry Expands Service

The Equine Medicine & Dentistry Service at the VMTH has recently expanded its services, and is now able to offer more advanced techniques. Under the guidance of Section Head Dr. Nicola Pusterla, the Service offers procedures such as: comprehensive oral exams; state-of-the-art imaging modalities; restorations, fillings and endodontics; periodontal treatments; extraction of teeth; and occlusal equilibration.

The Service works closely with ancillary services—such as the Diagnostic Imaging Service, Large Animal Anesthesia Service and Dental and Oral Surgery Service (DOSS)—to provide some of the most advanced care for equine patients. Perhaps more importantly, though, the Service works in concert with referring veterinarians to ensure they are kept abreast of the proceedings every step of the way.

"It is important that we keep the referring veterinarians informed of our process and of the care we have given to their patients," states Dr. Pusterla. "We want to involve them in the decision-making process, provide them with detailed documentation of the case and assist with follow-up consultations." Dr. Pusterla is also interested in providing training to referring veterinarians in order for them to better identify and care for their patients' dental needs.

## VMTH Implements Regenerative Medicine to Treat Injuries

Regenerative medicine, more commonly referred to as “stem cell research and treatment,” is making great strides in the veterinary field. This area of investigation focuses on using healthy regenerative cells to repair tissue or organs that have been damaged by injury or disease. To treat such cases, stem cells can be taken from other animals or, ideally, from that same animal. Autologous sources (from the same animal) are ideal since they essentially eliminate the risk of rejection from the host body. The most common tissue sources for obtaining autologous stem cells are from bone marrow and adipose tissue (fat cells). The retrieved adult stem cells are then injected into the injured or diseased area to help encourage the damaged tissue to repair itself.

At the VMTH, regenerative medicine is focused on adult stem cells (not to be confused with the controversial embryonic stem cell research) being utilized to treat tendon and ligament injuries in horses and dogs. That work is multidisciplinary and coordinated with several other UC Davis departments including the School of Medicine, the College of Biological Sciences and the Department of Biomedical Engineering. This synergistic approach allows our veterinary medicine researchers to collaborate with



Dr. Larry Galuppo prepares to inject millions of stem cells into a horse suffering from joint damage.

others focused on finding new cures for injuries and diseases, both in veterinary and human medicine.

“Perhaps the greatest asset to our regenerative medicine research is our ongoing collaboration with the Institute of Regenerative Cures (at the UC Davis School of Medicine),” states Dr. Larry Galuppo, Chief of Equine Surgery. “Experts in veterinary and human medicine are working together to solve many of the diseases and injuries that animals and people have in common.”

This team of researchers combines the talent, skill and knowledge of more than two dozen research and clinical faculty throughout the university. Together, the knowledge and experience of all these scientists provides leadership, creativity and optimism for developing stem cell therapies to treat animals and humans.

Currently, the VMTH is offering stem cell therapies for both equine and canine patients. UC Davis is pleased to work with referring veterinarians on determining the optimal source and administration method for individual therapeutic applications. To discuss regenerative medicine options for your patients, please contact the Veterinary Regenerative Medicine Laboratory at 530-754-0400 or Dr. Galuppo through the Large Animal Clinic at 530-752-0290.

Much of the Service’s advances are due to the addition of Dr. Travis Henry, a veterinarian with many years of experience in equine dentistry who recently joined the DOSS, who has helped increase the services the VMTH is able to offer. Dr. Henry has been involved in the development of several equine dental tools and instruments, and he provides continuing education to equine veterinarians worldwide.

“Being able to add Dr. Henry to our team has proven to be a tremendous asset to the VMTH,” adds Dr. Pusterla. “We look forward to complementing our referring veterinarians’ practices, as we all work toward improving equine health.”

To learn more about equine dentistry options at the VMTH or to schedule an appointment, contact the Large Animal Clinic at 530-752-0290.

## VMTH Now Offering Joint Cytology

Laboratory Services at the VMTH now offer joint cytology. Examination of synovial fluid is a powerful diagnostic tool in the investigation of arthropathies in dogs, cats and horses. There are a limited number of synovial fluid cytological responses and, generally, most fluids will be categorized by a Clinical Pathologist as either normal, degenerative, inflammatory or hemorrhagic. Boarded Clinical Pathologists at the VMTH are available to consult on your patient’s joint fluid cytologies Monday-Friday.

Submission information for Joint Cytology samples can be found at <http://bit.ly/XC97nh>, or email [UCDVetClinicalLabs@ucdavis.edu](mailto:UCDVetClinicalLabs@ucdavis.edu) for more information.

## A Note From the Director

Dear Colleagues,

Welcome to the spring issue of *VMTH Heartbeat*, our quarterly newsletter geared specifically to inform our referring veterinarians of developments at the VMTH. Thank you for your encouraging feedback on this publication and for continuing to provide us with suggestions that help us improve the services we provide to you and your clients.

As you read about some of our recent advances and new service offerings, remember that we would not be able to provide this cutting-edge medicine and outstanding training opportunities for our students and residents without your help. We greatly value our referral relationship with you, as we partner to provide the best possible care to your patients, as well as a top quality experience to your clients every time they visit the VMTH. We are grateful for the opportunity to serve them.

Beyond the clinical news we bring you in this issue, I am pleased to announce another exciting development that will positively impact you. Dr. Karl Jandrey has recently been named the new Director of Veterinary Medical Continuing Education for the School of Veterinary Medicine.

As we look expand our CE offerings and methods of delivery to help meet the needs of both large animal and small animal veterinarians throughout California, Karl will undoubtedly be seeking your input and ideas in the months ahead. Please don't hesitate to contact him to share your thoughts.

I consider myself fortunate to lead such a great team of faculty, house officers, technicians, support staff and students, and to serve such a loyal and supportive group of referring veterinarians. Thank you for supporting us in our mission to lead veterinary medicine and address societal needs.

Regards,



W. David Wilson, BVMS, MS  
Director, William R. Pritchard VMTH



W. David Wilson, BVMS, MS  
Director, VMTH

## CE Calendar

### Veterinary Continuing Education

(530) 752-3905, Fax: (530) 752-6728  
center4cpe@ucdavis.edu

### Upcoming Veterinary Continuing Education Events:

- April 6, 2013 – Veterinary Business Management Club Symposium, UC Davis
- April 13-14, 2013 – Canine Medicine Club Symposium, UC Davis
- April 27, 2013 – Holistic Veterinary Medicine Club Symposium, UC Davis
- May 11-12, 2013 – Student Veterinary Emergency & Critical Care Symposium, UC Davis
- June 29-30, 2013 – 6th Annual Back to School Veterinary Technician and Assistant Seminar, UC Davis

For more information on these and other 2013 CE events, please visit [www.vetmed.ucdavis.edu/ce](http://www.vetmed.ucdavis.edu/ce).

## Connect with us

### For Appointments Call:

Small Animal Clinic: (530) 752-1393  
Large Animal Clinic: (530) 752-0290



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