

Equine News

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Ghostbuster receiving radiation treatment in WSU's linear accelerator under the care of the WSU equine surgical team.

Radiation: WSU's Option for Fighting Equine Cancer

During the past few years, WSU's oncology team has successfully treated several horses with cancer using radiation therapy. Previously, this type of treatment was considered an unrealistic option for horses with cancer.

But WSU's advantage rests with its linear accelerator. This tool delivers focused radiation therapy exactly like that used with human cancer patients. It can also accommodate a horse. One of the most advanced machines in the world dedicated to animal cancer treatment, the linear accelerator in WSU's Veterinary Teaching Hospital uses either electron beams or high-energy x-ray radiation to treat tumors with minimal impact to the surrounding healthy tissue.

WSU oncologist Dr. Janean Fidel believes radiation therapy is a highly viable option for treating numerous equine tumors, including common skin tumors such as melanomas, sarcoids, and squamous cell carcinomas.

"Even though cancer is not as common in horses as dogs or cats, it does still occur and just like in small animals, radiation therapy is a valuable tool in the treatment of our equine oncology patients," said Dr. Fidel, who works with WSU's equine team

to treat horses that come to the Veterinary Teaching Hospital in Pullman.

Recently, Dr. Fidel presented her findings, entitled "Radiation Therapy in Horses: Something to Consider," at the American College of Veterinary Internal Medicine (ACVIM) Forum. According to Dr. Fidel, tumors located on extremities or the head are easier to position, but any body part that fits under the beam can be treated. After reviewing the biology of radiation therapy in dogs and cats, Dr. Fidel says the goal remains the same: Deliver the highest possible dose of radiation to the tumor while sparing the normal surrounding tissue. Under this model, she believes that only tumors that have not or do not have a tendency to metastasize or spread should be considered.

Treating horses presents several challenges because of their size and the number of treatments required. But the WSU equine team and Dr. Patrick Gavin, a WSU radiation oncologist, developed a method of anesthetizing horses and moving them to and from the linear accelerator in a safe and rapid manner. Dr. Gavin has since retired and now Dr. Fidel develops the protocols to be used for individual horses.

In one sterling example, WSU veterinarians were successful in treating a Clydesdale/Thoroughbred cross named Ghostbuster in 2005. At 1,400 pounds, Ghostbuster was the largest animal to be treated in WSU's linear accelerator.

"We used a protocol where we anesthetized Ghostbuster twice a day for five days," said Dr. Kelly Farnsworth, a WSU professor and equine surgeon at WSU who was involved in the case. "This protocol had not been used in horses before. Typically the procedure from the time he was anesthetized to the time he was back in the recovery stall was around 12 to 13 minutes. The treatment in the linear accelerator lasted only about 25 to 30 seconds, and the rest of the time was transporting him to and from the linear accelerator. He came through the treatments without any problems at all."

Better yet, Ghostbuster's tumor completely regressed and more than a year later, the horse remains cancer free. Incessant tearing in his eye caused from the tumor was also eliminated. "The results of this therapy in other species and certainly in this horse have been very encouraging," Dr. Farnsworth said.

Don't Sugarcoat It: How to Manage an Insulin-Resistant Horse

Insulin resistance can lead to type 2 diabetes in people. In horses, it can lead to what is called equine metabolic syndrome (EMS). It is not uncommon in horses, and has been gaining more recognition because of the level of awareness and epidemic of people living with type 2 diabetes.

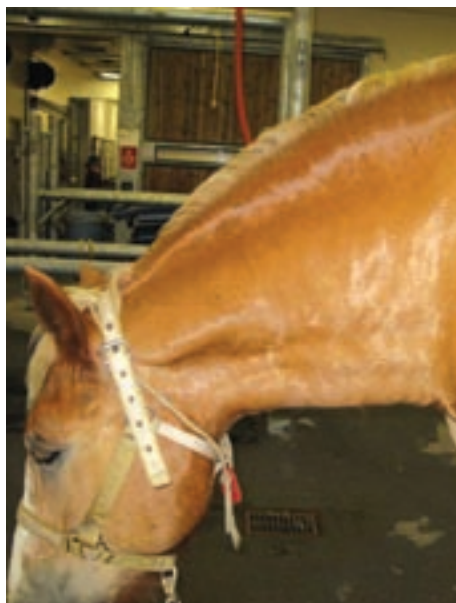
"We have diagnosed five or six horses at the Veterinary Teaching Hospital during the past year," said Dr. Nicki Wise, a WSU second-year equine medicine resident.

"Most presented with chronic laminitis (also referred to as founder), which is the one of the biggest problems for horses that have EMS." Laminitis is a painful condition in the hoof that can be life-threatening if severe enough. Beyond chronic laminitis, a horse's appearance may raise suspicions of EMS.

"Often, horses with EMS have abnormal fat deposits over their neck, rump, tail, and eyes," she said. "The disease is closely related to Cushing's disease. Technically it is different, but a lot of the signs are the same. Generally, the disease is not life-threatening, but it will probably shorten their lifespan if these horses are not managed properly."

Ponies, Arabians, and Paso Finos are among the common breeds that the condition is found in, but any horse can suffer from it. EMS also tends to occur in middle age to older horses, and those that are obese and have a sedentary lifestyle.

"We don't know if obesity leads to insulin resistance or if insulin resistance



A horse with fat deposits on the neck, otherwise known as a "cresty neck," which can be a sign of EMS.

results in obesity," Dr. Wise said. "We don't know which comes first."

To confirm an EMS diagnosis, veterinarians look at clinical signs, perform a physical exam, and take a blood test to measure serum insulin levels. "The blood test is easy and inexpensive, and can differentiate between insulin resistance and Cushing's disease," Dr. Wise said. "If insulin levels are high, the horse probably has EMS."

There is no cure for horses with EMS, although they can benefit from consuming

a diet consisting mostly of grass hay that has a low glycemic index. Glycemic index is the measure of a food's effect on blood sugar.

"It depends on the area, but the grass hay around the Palouse is generally okay. The glycemic index of hay can be tested in the hay analysis laboratory at the University of California Davis," she said. "No grain or treats like carrots should be fed. Several companies offer commercial pelleted feeds for horses with insulin resistance, which might be an option for picky horses. But always check with a veterinarian before switching feeds."

Regular exercise is also part of a management plan for many horses with EMS, but this requirement can be hard to meet if a horse is suffering from chronic laminitis.

"If there aren't any lameness issues, exercise is one of the best things that a horse can do," Dr. Wise said. "When switching feed, horses can lose muscle rather than fat, and exercise can help with this considerably. Owners need to understand what condition their horse is in and monitor it so the horse does not waste away. Owners that stick to the changes have horses that feel better, are generally more active, and have fewer cases of laminitis."

For more information about EMS, or to get help with a diagnosis or treatment plan, contact your local veterinarian or the WSU Veterinary Teaching Hospital at 509-335-0711.

Count Me In

It is our privilege and desire at WSU to provide the best veterinary care to the many formidable equine athletes and companions who are treated at our hospital. Through the generosity of many individuals who support quality health care and the WSU College of Veterinary Medicine's mission of teaching, research, and service, we are able to continue our work and plan for the future with confidence.

The largest part of what we do is made possible by the encouragement, collaboration, and financial contributions of our generous public. Through each thoughtful gift, WSU is making a difference in the lives of our students, the equine industries of Washington, and the region. These gifts enable us

to greatly enhance the scope of our equine veterinary services and allow us to continue to provide world-class healthcare for horses throughout the Pacific Northwest.

We would be honored if you choose to become a partner in the important work that goes on here. If you are interested in supporting the advancement of Washington State University's renowned equine medicine and surgery section, please contact us:

Dr. Richard DeBowes, Associate Dean of Veterinary Development, 509-595-8015 or debowes@vetmed.wsu.edu
Lynne Haley, Director of Veterinary Development, 509-335-5021 or lhaley@vetmed.wsu.edu

Digital Radiography incorporated into WSU's Medical Imaging Services

Just like digital cameras have advanced modern photography, digital radiology systems have changed the way radiographs or x-rays are taken in both human and veterinary medicine.

Recently, WSU's College of Veterinary Medicine has taken advantage of such technology and installed computed radiology (CR) and digital radiology (DR) systems in the Veterinary Teaching Hospital. The two systems acquire an image differently, but when the processing algorithms are adjusted appropriately, either system can produce images of very high quality.

"Digital radiology provides a more timely and quality service for our clients," said Dr. Greg Roberts, a board certified veterinary radiologist and WSU clinical assistant professor of radiology who has about 20 years of experience imaging animals and specializes in imaging horses. "It provides wide latitude for exposure and gives us an increased capability to look at soft tissue and bone density on the same image by providing more shades of gray. It is hard to get a traditional film-screen radiograph with both of these."

CR is a cassette-based system that captures an image on a special plate that is subsequently processed in an image reader. "This increases the time commitment, but makes the system more flexible because images can be acquired in several different rooms simultaneously, including surgery suites, and all brought back and processed in one plate reader," Dr. Roberts said. "DR, on the other hand, consists of a flat panel detector that is directly wired into a computer. It provides nearly instantaneous feedback to the radiologist. With it, I can look at the image in 12 seconds on a computer monitor. DR's one disadvantage is it can only be used in one place at a time.

"Having both types of systems allows us to be more versatile and helps train students with the different modalities," he said. "With either digital system, the number of retakes to get a

good image is reduced because post processing allows us to correct for minor over- and underexposures that would require repeating a conventional film screen radiograph."

With both CR and DR, conventional x-ray energy is still used to obtain an image, but because a computer processes the image and displays it on a screen, it eliminates the need for film processing and physical storage space, such as with traditional radiography. Having images stored on computers also allows for images to be shared easily with veterinarians involved in treating a patient.

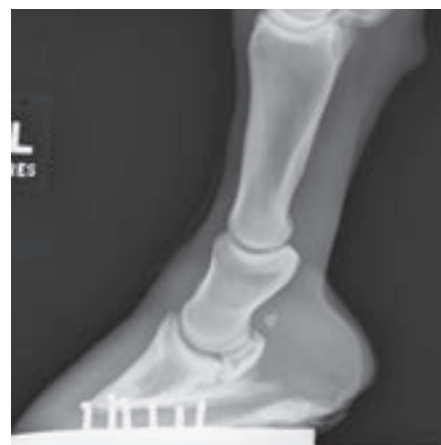
"Going to these systems has improved our efficiency and gives us a better end result," Dr. Roberts said, who was responsible for installing the technology at the college. "It doesn't replace our other imaging modalities, but it complements them in its own way."

In addition to standard radiography and ultrasonography, WSU's medical imaging service is renowned for its other imaging capabilities. In fact, WSU is one of the most advanced veterinary hospitals in the world with such sophisticated systems as magnetic resonance imaging (MRI), computerized tomography (CT scan), and nuclear scintigraphy (bone scanning).

"This past summer, a new scintigraphy machine was installed in the hospital with new capabilities, such as motion correction, which provides better and crisper images," Dr. Roberts said. "It allows us to more specifically localize abnormal bone remodeling in horses. It also provides new capabilities for small animals, such as the ability to evaluate glomerular filtration rate (GFR) in dogs, which is an indication of their kidney function.

"Despite all of our technology, about 80 percent of imaging is still radiographs," he said. "It is still the heart of what we do."

WSU's medical imaging team currently includes three veterinary radiologists, including Dr. Roberts and Drs. Russell Tucker and John Mattoon. While Dr. Roberts images



A radiograph of a horse's foot taken at WSU with DR technology.

large and small animals, his main interest and expertise is in horses. In fact, he spent years on the faculty at the University of Florida veterinary college exclusively imaging horses. "I love to image horses," he said. "That is what I do." Four full-time veterinary technologists also support the team, as well as fourth-year veterinary students that rotate through the service.

"Students learn how to obtain appropriate diagnostic images and interpret them," Dr. Roberts said. "The emphasis is on radiographs because they will be dealing with them in private practice, but they are exposed to other imaging modalities as well."

Animals that come to the WSU Veterinary Teaching Hospital in need of imaging are first seen and are in the care of veterinarians in the medicine or surgery services before being sent to the radiology service. Veterinarians from private practices around the Northwest can also consult with WSU's medical imaging team and submit images through the mail or electronically by sending DICOM images directly to a server.

To find out more about WSU's medical imaging service and imaging capabilities, or for referring veterinarians who would like to submit images, visit www.vetmed.wsu.edu/depts-vth/radiology or call the WSU Veterinary Teaching Hospital at 509-335-0711.

Fourth Annual Ride for Research Raises \$12,000 for WSU

For the fourth year, the Washington State Horse Council hit the trail to benefit the WSU College of Veterinary Medicine.

The Ride for Research event includes a trail ride for prizes, camping, an evening auction, and a barbecue dinner. This year, the benefit raised more than \$12,000 for equine research at WSU. "Considering the high cost of gas and everything else, I was surprised to see such a good turnout," said Washington State Horse

Council secretary Sharon Call. "This event just keeps growing!"

The WSU College of Veterinary Medicine is a national or international leader in many areas of equine research including sports medicine, pain management, joint diseases, and new techniques in laparoscopic surgery. Additional work includes investigating equine digestive and infectious diseases, as well as the immune responses of horses and foals to disease.



Riders helping raise dollars for WSU equine research.

The WSU College of Veterinary Medicine Equine Team

The WSU Veterinary Teaching Hospital could not operate without the cooperation and dedication of its veterinarians, technicians, and other support personnel. The WSU equine team strives to provide every client with the best possible medical care for his or her horse. Below is a chance to get to know some of these people if you visit the hospital with your horse.

Equine Faculty

The **Equine Medicine team** provides an array of services for the diagnosis and treatment of a wide variety of horse diseases, including heart and lung disorders, colic, diarrhea, neurological diseases, neonatal intensive care, and infectious diseases. Our senior faculty members, **Drs. Melissa Hines** and **Debra Sellon**, are board-certified in large animal internal medicine by the American College of Veterinary Internal Medicine (ACVIM). In addition, **Dr. Kathy Seino** joined the medicine team in February. She is an assistant professor who specializes in neurological infectious diseases like West Nile virus and equine herpes virus, and has conducted extensive vaccine and immunological research into West Nile virus.

The **Equine Surgery team** is renowned for their expertise in lameness evaluation and laparoscopic surgery. They provide a comprehensive array of surgical procedures for many conditions including fracture repair, arthroscopic surgery, colic, urinary bladder disorders, upper respiratory abnormalities, and ovariectomies, to name just a few. Team members also perform high-speed treadmill testing. **Drs. Claude Ragle, Kelly Farnsworth, and Bob Schneider** are board certified by the American College of Veterinary Surgeons. Another key board-certified member of the surgery team, **Dr. Julie Cary**, is head of our emergency services at WSU. **Dr. Sarah Sampson** is the newest faculty member in the surgical service, but she is an old hand on the team. She joined the service in 2008 as a clinical instructor after serving four years as a WSU equine surgery resident. She specializes in equine orthopedic surgery, lameness diagnosis, and magnetic resonance imaging (MRI).

The **Equine Theriogenology service** (reproduction) is led by **Dr. Ahmed Tibary**, our board certified and internationally renowned large animal theriogenologist. Dr. Tibary provides a diverse range of services for horse owners including breeding soundness evaluations of stallions and mares, pregnancy and fetal well-being evaluations, semen collection and freezing, embryo transfers, and artificial insemination with fresh-cooled or frozen semen.



Dr. Melissa Hines, DVM, Ph.D., Diplomate ACVIM
Associate Professor and **Chief of the Equine Medicine Service**
Specializes in **immunology, infectious diseases, neonatology, and exercise physiology**
Member of the WSU veterinary faculty since 1989
509-335-0765, mth@vetmed.wsu.edu



Dr. Debra Sellon, DVM, Ph.D., Diplomate ACVIM
Professor of Equine Medicine
Specializes in **infectious diseases, hematology, and pain management**
Member of the WSU veterinary faculty since 1997
509-335-0733, dsellon@vetmed.wsu.edu



Dr. Kathy Seino, DVM, Ph.D.
Assistant Professor of Equine Medicine
Specializes in **neurological infectious diseases and West Nile virus**
Member of the WSU veterinary faculty since 2008
509-335-0711, kseino@vetmed.wsu.edu



Dr. Ahmed Tibary, DVM, Ph.D., Diplomate of the American College of Theriogenologists
Professor of Theriogenology
Specializes in **large animal reproduction**
Member of the WSU veterinary faculty since 2000
509-335-1963, tibary@vetmed.wsu.edu



Dr. Robert Schneider, DVM, M.S., Diplomate ACVS
Professor and **Chief of Large Animal Surgery**
Specializes in **equine orthopedic surgery**
Member of the WSU veterinary faculty since 1992
509-335-0791, rks@vetmed.wsu.edu



Dr. Claude Ragle, DVM, Diplomate ACVS, Diplomate ABVP (equine practice)
Associate Professor of Equine Surgery
Specializes in **minimally invasive surgery, laparoscopy, respiratory surgery, and gastrointestinal surgery**
Member of the WSU veterinary faculty since 1992
509-335-0822, ragle@vetmed.wsu.edu



Dr. Kelly Farnsworth, DVM, M.S., Diplomate ACVS
Clinical Assistant Professor of Large Animal Surgery
Specializes in **minimally invasive surgery, laparoscopy, and lower limb lameness**
Member of the WSU veterinary faculty since 2002
509-335-0724, farns005@vetmed.wsu.edu



Dr. Julie Cary, DVM, M.S., Diplomate ACVS
Clinical Assistant Professor of Equine Surgery and Emergency Care
Specializes in **equine emergency medicine and surgery**
Member of the WSU veterinary faculty since 2005
509-335-3079, jcary@vetmed.wsu.edu



Dr. Sarah Sampson, DVM, doctoral candidate
Clinical Instructor of Equine Surgery and Orthopedic Sports Medicine
Specializes in **magnetic resonance imaging (MRI), lameness, and navicular syndrome**
Member of the WSU veterinary faculty since 2008
509-335-0711, sarahs@vetmed.wsu.edu

WSU Equine Veterinary Technicians

Our registered veterinary technicians are the "nursing" staff of WSU's Veterinary Teaching Hospital. They play a vital role in patient diagnostics and care, as well as in the education of veterinary students. Their dedication and caring is evident with every patient they assist.

Lethea Hunter-Russell is a licensed veterinary technician (LVT) that works with the equine orthopedic surgery service. **Molly**



Left to right: patient services coordinator Lynette Kinzer, equine veterinary technician Lethea Hunter-Russell, equine veterinary assistant Jordan Munding, and equine veterinary technicians Molly Loaiza and Teri Olson.

2008 Equine Residents

The WSU equine section is staffed with many competent veterinarians who occupy a number of critical positions on our health care team. An important component of our team is our residents, who have completed their veterinary degree and at least one year of an internship or equivalent practice experience. As residents, they pursue advanced clinical training in a veterinary specialty area such as internal medicine or surgery. Completion of a residency qualifies them to pursue specialty board certification with the American College of Veterinary Internal Medicine or the American College of Veterinary Surgery. Residents typically work at the WSU Veterinary Teaching Hospital for at least three years and are involved in many cases that contribute to the development of their high-level skills. Many of the residents also engage in graduate research programs to enhance their competence as clinical scientists and future academicians. Here are the 2008 residents.



Dr. L. Nicki Wise

Dr. Wise is in the second year of her residency at WSU. She earned her DVM from the University of Georgia in 2006, and following graduation was a large animal intern instructor at Texas A&M University. Her previous experience also includes working as a research assistant and large animal treatment technician at UGA, and she completed several university externships, including at the University of California Davis, Louisiana State University, and Texas A&M. In July

2007, she joined the WSU equine team as an equine medicine resident with a special interest in critical care and neonatology. Her goals are to become board certified and pursue a career that encompasses clinical practice, teaching, and research.

"WSU's diverse caseload, excellent reputation, and the opportunity to work with the field's leading experts are obvious attributes," she said of her residency. "The program also offers a great deal of support to incorporate research into the residency curriculum, which is very appealing to me."

Dr. Stavros Yiannikouris

Dr. Yiannikouris also joined the WSU equine team in July 2007. He earned his DVM from the University of California Davis in 2006, and performed an internship that focused on surgery, medicine, and anesthesia at the Rood and Riddle Equine Hospital in Lexington, Kentucky. Originally from Nicosia, Cyprus, Dr. Yiannikouris comes from a family-owned horse breeding and training Thoroughbred farm, and was an exercise jockey in Nicosia. He also served as Second Lieutenant for the Cyprus National Guard before coming to the United States. He



gained experience as head barn nurse at the University of California Davis equine barn during his college career. His future goals are to become board certified in equine surgery and to work in a private surgical practice that focuses on racehorses.

"I was impressed by the reputation of Washington State University," he said. "The facilities and diagnostic modalities offered are a reflection of the patient care provided and the superb student education. I am glad to be a part of this team."



Dr. Jacobo Sebastian Rodriguez

Dr. Rodriguez joined the WSU equine team as a large animal theriogenology resident in July 2007 and is in the second year of his residency. He earned his DVM from the National University of La Plata, Argentina, in 2000, and until 2006, worked as a veterinary surgeon for Farm Santa Margarita in Buenos Aires, the largest quarter horse farm in Argentina. There he was involved with

reproductive procedures such as artificial insemination with fresh, cooled, and frozen semen and embryo transfer. He also completed an equine internship program at Chino Valley Equine Hospital in Chino, California, in June. His future goals are to become board certified in theriogenology and to enter into a master's or doctoral program to develop research skills.

"My goal is to increase my education through intense training and to expand my clinical and surgical skills under the direct supervision of experienced clinicians at WSU," he said.

Dr. Chad Marsh

Dr. Marsh is our newest equine surgical resident this year. He joined our team in 2007 as an equine surgery intern, after earning his DVM from Texas A&M University. He has a special interest in equine sports medicine and orthopedic and soft tissue surgery. Before coming to WSU, Dr. Marsh worked as a veterinary technician in equine surgery, lameness, sports medicine, drug testing, and radiographic evaluation for several years, and has also been involved with competitive team roping. His future goals are to become a board certified equine surgeon.



"The program and mentorship at WSU will provide an excellent environment to act as a stepping stone to further develop my education and competencies," he said. "This experience will allow me to further develop my surgical training and be exposed to imaging modalities and opportunities not available anywhere else."

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Loaiza is an LVT who works primarily with the equine medicine service. **Shirley Sandoval** (not pictured) provides primary support for large animal and equine theriogenology. **Teri Olson** is a LVT with advanced training in equine dentistry. She also helps the equine surgery service, and is an invaluable aid in evaluation and treatment of a variety of dental disorders in horses. In addition, **Rachel Jensen** (not pictured) and **Jordan Mundinger** are equine veterinary assistants that work with the equine team.

WSU Equine Support Staff

Many other individuals provide critical assistance in the day-to-day operations of the equine hospital. It is difficult to include everyone involved with the care and

treatment of equine patients, but you may meet a few of these people.

Lynette Kinzer is our patient services coordinator at the large animal appointment desk, and the person you are most likely to talk to on the phone. Lynette helps clients make appointments, answers questions, arranges transportation to the hospital, and is a liaison between our doctors and clients. **Bob Parkins, Mike Carpenter, Rick Fredrickson, and Dan Hopkins** (not pictured) are our full-time large animal care staff. They clean and maintain the stalls for patient care during hospitalization, maintain our paddocks, and work with the animals. Rick Fredrickson is also the shuttle van driver for equine patients traveling between Pullman and western Washington.



Left to right: equine support staff Bob Parkins, Mike Carpenter, and Rick Fredrickson.

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Dr. Siddra Hines

Dr. Hines is our newest equine medicine resident. She attended WSU from 2000 to 2007 and earned her DVM in May 2007. After graduating, she performed an internship in equine medicine, surgery, and ambulatory practice at the University of Missouri-Columbia before returning to Pullman in July to join the WSU Equine Team as a resident. Prior to her internship, Dr. Hines spend several years working in the WSU Veterinary Teaching Hospital as an equine emergency technician and as a research assistant in other veterinary departments at WSU. Her future goals are to become

board certified in equine internal medicine, attain a doctorate in immunology, and work in a field of academia as an equine medicine physician.

“WSU has many qualities that set it apart from other residency opportunities,” Dr. Hines said. “One of the greatest assets the WSU clinical environment offers is the care and effort invested into each case individually. I am eager to take advantage of the support and guidance of the exceptional mentors offered here.”

WSU Veterinary Teaching Hospital Switchboard

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| Main Hospital Switchboard and Emergencies | 509-335-0711 |
| Equine Appointments | 509-335-0711 |
| Agricultural Animal Appointments (Non-Theriogenology)..... | 509-335-5377 |
| Theriogenology (Equine and Ag Animal)..... | 509-335-0741 |
| Small Animal Appointments..... | 509-335-0711 |
| | 509-335-0752 |
| Dean’s Office | 509-335-9515 |
| VTH Fax Number | 509-335-3330 |
| Billing | 509-335-0711 |
| Pharmacy | 509-335-0736 |
| Pet Partnership Program | 509-335-7347 |
| Pet Loss Hotline | 509-335-5704 |

Want to know more about our equine clinical services, research, and accomplishments, or receive our quarterly newsletter online? Visit the equine Web site at www.vetmed.wsu.edu/depts-equine, or the WSU Veterinary Teaching Hospital Web site at www.vetmed.wsu.edu/depts-vth/equineServices.aspx.

To subscribe to the online newsletter, go to www.vetmed.wsu.edu/depts-vth/EquineNews.

Also feel free to call 509-335-0711 for equine appointments or emergency care.