

Advance

Healthy Animals | Healthy People | Healthy Planet

Improving the health
of animals and people
at home and around
the world.

A newsletter from the Washington State University College of Veterinary Medicine

Spring/Summer 2017

WSU's Behavior Service

Treating
the Whole
Patient



College of

Veterinary Medicine

WASHINGTON STATE UNIVERSITY

Leticia Fanucchi,
WSU veterinary behaviorist.



Dean Bryan Slinker,
WSU College of
Veterinary Medicine

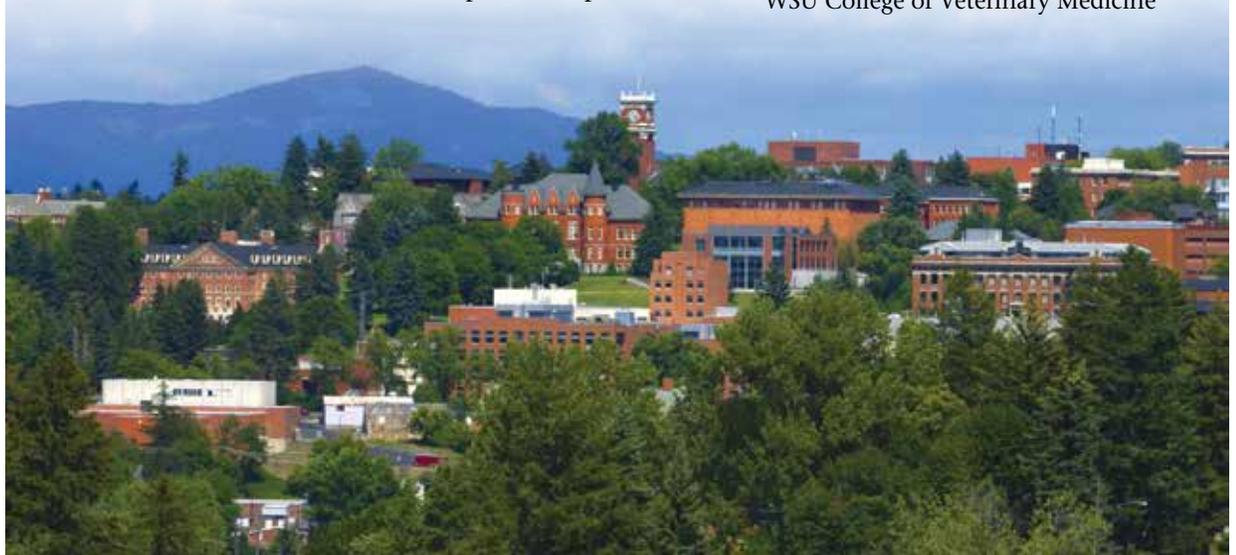
At the college, our highly-specialized care for companion animals in areas such as oncology, cardiology, or ophthalmology means we can provide an incredible team approach to the most complicated and difficult medical and surgical cases. We are rightly very proud of this. We are just as proud to offer specialized care more routinely. If “routine specialized care” sounds like an oxymoron to you, let me explain. Important areas of general practice, including advanced level of routine dentistry, dental disease prevention, behavioral services, physical rehabilitation, and alternative and complementary medicine-based strategies, broaden what is generally thought of as routine care for animals. Today, there is also a rethinking of what a general practice environment should look like from the point of view of the dog or cat. The Cat Friendly Practice program (<http://www.catvets.com/cfp/cfp>) and Fear Free (<http://www.fearfreepets.com>) are prominent examples of efforts to reduce stress for pets when they visit their veterinarian. At WSU, we are striving to design a more cat friendly corner of our large hospital, modifying our exam rooms, and supporting our staff and faculty to become certified in Fear Free principles. Behavior medicine principles underlie many of these approaches. As we work to educate our DVM graduates to achieve their best possible success in companion animal practice, we are also adding behavior services to our own practice to provide

clinical training opportunities for students and the expertise to bring these concepts into the classroom prior to clinical experience.

In this issue of *Advance*, we highlight our behavior program and the great work Dr. Leticia Fanucchi and her colleagues are doing to treat the whole patient. She and her colleagues also conduct research on the behavioral underpinnings of cat-friendly and Fear Free to determine which practices to prioritize, and to inform how we best teach our students about these concepts. Reducing an animal’s stress during a visit to the veterinarian, coupled with basic expertise in behavioral medicine, are critical to the success of the profession; reducing the often-significant anxiety and stress that a visit to the veterinarian induces, these practices make it easier for our clients to seek routine care for their pets. Further, by teaching our graduates more about basic behavioral services and appropriate referral to specialized care when needed, we all can work together to reduce the likelihood of relinquishment and elective euthanasia.

As always, thanks to all of you for the many ways you support your College of Veterinary Medicine, and Go Cougs!

Dr. Bryan Slinker, Dean
WSU College of Veterinary Medicine



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Vaccinating increases family wealth, girls' education

by Marcia Hill Gossard '99, '04



A Maasai man herds grazing cattle.

A Washington State University-led research team found households in rural Africa that vaccinate their cattle for East Coast fever increased their income and spent the additional money on food and education. Researchers also found that when fewer cattle died from the fever, girls were more likely to attend secondary school.

“When households vaccinate, it increases their wealth and income and sets them on a trajectory to provide education for their children,” said lead author Tom Marsh, professor in WSU’s School of Economic Sciences and the Paul G. Allen School for Global Animal Health. “Vaccinating is a way for households to pull themselves out of poverty.

“And it has an intergenerational effect if a family can spend more of their resources on education, especially for girls,” he said.

MORE MILK, FEWER ANTIBIOTICS

Published in the journal *Science Advances* (<http://advances.sciencemag.org/content/2/12/e1601410>), the study found that vaccinating increased a household’s income because fewer cattle died and disease free cattle produced more milk to feed the family or to be sold in the marketplace.

Households also saved money because vaccinated cattle did not need as many antibiotic treatments or to be sprayed as often for ticks, which spread the disease.

“We are interested in understanding how the health of livestock translates into household decisions and meets sustainable development goals,” said Marsh. “For example, concern about loss of milk production drives the adoption of vaccines because it is so important to households and children.”

LEADING CAUSE OF CALF DEATH

Caused by the parasite *Theileria parva*, East Coast fever is spread from diseased cattle to healthy cattle through tick bites. The disease can spread quickly and infect cattle throughout the community.

“East Coast fever is one of the most devastating cattle diseases,” said Marsh. “It is the leading cause of calf death in East Africa.”

For pastoral families, cattle are a main source of income. Losing even one to disease can negatively affect an entire family.

BROADER IMPLICATIONS FOR ANTIBIOTIC RESISTANCE

Households that vaccinated used fewer antibiotics to treat animals, so the widespread adoption of vaccinations could have larger global health benefits.

“We need to think long term about the use of antibiotics and antibiotic resistance, as well as vaccines,” said Marsh. “If organizations are going to invest more money on vaccines, then besides the known effects—such as fewer cattle deaths—we need to understand the indirect effects.

“Developing better vaccines and easier ways to distribute them could have broad societal effects,” he said.

Coauthors on the study are Jonathan Yoder, WSU School of Economic Sciences and the Allen School; Tesfaye Deboch (deceased), WSU School of Economic Sciences; Terry McElwain, WSU Allen School; and Guy Palmer, WSU Allen School. The research was conducted with a grant from the Global Alliance for Livestock Veterinary Medicine and funded in part by the Bill & Melinda Gates Foundation.

WSU's Behavior Service: Treating the Whole Patient

by Marcia Hill Gossard '99, '04

Ann Patten was inside her home when she heard the ear-piercing sound of a cat howling. She thought one of her cats was in a fight, so she ran out onto the deck. She looked around, and there was Cleo, the newest member of their cat family, all by himself. "It was only Cleo chasing his own tail," says Patten.

A slender, long-legged, gray tabby, Cleo had followed Ann and her husband Michael's cat, Maggie, home some months earlier. They tried to find his owner, but no one claimed him. "He looked like a sphynx, so we named him Cleopatra," says Patten. They later found out that Cleopatra was really Cleopatrck.

Playful and affectionate, Cleo often seemed like any other young cat. He liked to put his paws around Ann's neck and nuzzle her hair. But if the doorbell rang, he would hide outside for days. Other times his ears would flatten, his eyes would get wide with dilated pupils, his breathing became labored, and he would start chasing his tail, pulling violently at the fur. Ann says they could distract him and he would stop, so they didn't think too much of it. He was also marking around the house spraying urine many times a day.

When Cleo started having trouble urinating they took him to their local veterinarian. He received medical treatment to unblock his urinary tract and was put on a special diet to help prevent it from reoccurring. But six months later, Cleo was taken to the WSU Veterinary Teaching Hospital. This time, because it was New Year's Eve, he went to the emergency room. "Many veterinary clinics were closed, so we were grateful for WSU's emergency service," says Patten. At WSU, he was diagnosed with feline idiopathic cystitis, or inflammation of the bladder with no underlying cause such as stones or crystals in the urine.



Adopted from a shelter, Rowdy, a 10-year-old Sheltie, followed his new owner, WSU veterinarian Dr. Angela Nguyen, everywhere and showed some aggression toward other people. WSU behaviorist Dr. Leticia Fanucchi diagnosed him with generalized anxiety and separation anxiety. Medication and behavior modification helped his behavior and he is now part of a cognition study on dogs with Dr. Fanucchi.

Stress can contribute to a cat developing feline idiopathic cystitis. So, emergency care veterinarian, Dr. Angela Nguyen, started asking questions about Cleo's home life. "If there is more than one cat in the home we will ask if there are multiple litter boxes and multiple water bowls. We will also ask if there are toys and things for the cat to do," says Nguyen.

At Cleo's home, there were not only multiple litter boxes, but ramps for the cats, places to hide, and plenty of toys to play with. "There was a lot of enrichment in the home," says Nguyen. "Everything sounded perfect."

But as Dr. Nguyen started asking more questions about Cleo's behavior at home, she began getting the sense that his behavior was not typical. "When she told me about the screaming and self-mutilating while chasing his tail and marking 10 to 15 times per day, I knew it was beyond normal behavior," says Nguyen. "But it was very normal to them that he acted that way. As veterinarians, we need to ask for details because although it may be normal for them, it isn't normal behavior." Ann also realized just how different Cleo's behavior was when she saw how her other cats behaved when Cleo was in the hospital for five days. "They all seemed more relaxed," she says.

Dr. Nguyen believed stress from a general anxiety disorder contributed to the inflammation in Cleo's bladder. Although she could help him in the short term by unblocking his urinary tract, once cats have urinary blockage, Dr. Nguyen says it usually happens again. Surgery is an option, but it comes with its own risks, and if stress is causing the inflammation then other parts of the urinary tract can become blocked even after surgery. So, Dr. Nguyen referred Cleo to WSU veterinary behaviorist, Dr. Leticia Fanucchi. "Addressing the stress is the long-term solution and we recommend it for all cats who have urinary blockages," says Nguyen.

Dr. Fanucchi came to WSU in 2010 for graduate school to study animal behavior. While earning her veterinary degree in her native Brazil, she had thought she would become a neurologist, but it was her Lhasa Apso named Betty Boop that helped her find her career path. "She had severe separation anxiety from day one," says Fanucchi. "And I made the mistakes with her that everyone makes, so her behavior got worse, not better." By 2015 she had earned her doctorate, and the day after she graduated, she started the behavior program at the WSU veterinary hospital. Currently WSU has one of only eight animal behavior programs in the country.

Dr. Fanucchi sees dog patients at the WSU veterinary hospital, but for cats, like Cleo, she makes house calls. "When cats are outside their environment, they don't show their normal behaviors," she says. "They shut down and go into survival mode so they are more likely to want to hide or go into their kennel."

After visiting Cleo in his home, Dr. Fanucchi prescribed him fluoxetine, a medication to help reduce his anxiety. Usually a month or more is needed to get the medication to effective levels, but in Cleo's case, his owners saw changes within days. "The spraying decreased by more than 50 percent after the first week on the medication," says Patten.



Before being treated by WSU behaviorist, Dr. Leticia Fanucchi, Cleo chased his tail and howled as he pulled at the fur on his tail.

Dr. Fanucchi also put Cleo on a protocol to desensitize him to the noises that were causing him anxiety such as the doorbell or other loud noises. “When exposed to a stimulus that creates anxiety, I had them give Cleo a treat or play with him so he would have a positive association with the stimulus,” says Fanucchi. She also used counter conditioning to

help Cleo stop the undesired behavior of chasing his tail and replace it with a desired one. Whenever he would start to chase his tail, she had Ann and Michael distract him with a toy. “Play is more goal oriented, so he wouldn’t think so much about his tail,” Fanucchi says.

“A good environment combined with fluoxetine has really changed his life,” says Patten. “He has more normal responses to loud noises and more control over himself. And he is happier now, too. It turned out to be the best option for him.”

“It is not one thing that you do, it is a combination of many things—chemical, nutritional, and behavioral therapy,” says Fanucchi. “If the brain is not balanced, no amount of training will solve the problem.”

But by the time a patient comes to Dr. Fanucchi, their unwanted behaviors are often severe. “When I see a patient, the animal usually has a combination of behaviors, and they are coming to me as a last resort,” says Fanucchi. “It has usually been bad for a long time so the behavior has been reinforced.”

For dogs, the most common behaviors she sees are separation anxiety and aggression. Anxiety, she says, can show itself as aggression. Many dogs who are anxious have what is called fear aggression. They are afraid, so they act out aggressively towards people or other animals. But animals can also have obsessive compulsive behaviors where they lick a certain spot or even begin pulling out their own hair. Some animals develop these issues over time, but many are born with anxiety or fears, which can become reinforced unknowingly by owners until it becomes a serious problem.

“It is a misconception that it is the owners fault,” says Fanucchi. “But as owners, we can make it worse.” For example, a dog who is nervous when looked in the eye, may try to look away to avoid eye contact, which is a signal to the owner that the dog is afraid. If the owner doesn’t recognize it as fear and continues to try to get eye contact with the dog, the dog’s anxiety could turn to aggression. “The dog is giving signals,” says Fanucchi. “But as humans we may miss those signals, so

“It is not one thing that you do, it is a combination of many things—chemical, nutritional, and behavioral therapy. If the brain is not balanced, no amount of training will solve the problem.”

—Dr. Leticia Fanucchi,
WSU veterinary behaviorist.

when the animal becomes aggressive we are surprised.” She believes it is important to try behavioral options as soon as possible, before the behavior gets severe.

Although Fanucchi says treatment for behavior problems is a life-long commitment, behaviors can change so radically that the pet can seem like a completely different animal, which was the case for Cleo. Not only is he calmer and happier, but he has not had a urinary blockage for more than a year.

“What truly helped Cleo was getting his generalized anxiety under control,” says Nguyen. “Although he may block again, behavior modification, in addition to medication, has really reduced the risk of his urinary tract reblocking. We feel very lucky to have someone like Dr. Fanucchi at WSU.”

Pups Parading the Palouse

Every other week, 20 dogs in the community go for a stroll to learn good walking manners.

Dr. Fanucchi and veterinary student Rachel Denney ('17 DVM) started the community program Pups Parading the Palouse in 2014 to help dogs learn to walk on a leash without reacting to other dogs or people. “All breeds are welcome, and there are no behavior restrictions,” says Fanucchi. But not all dogs on the walk need the training. “We have dogs that serve as behavior models to help teach other dogs appropriate ways of reacting,” she says. For more information, visit www.facebook.com/pupsparadingthepalouse.



For more information about the behavior program at WSU visit go.vetmed.wsu.edu/Behavior.



Lynne Haley,
Senior Director of Development

WSU alumnus John Hill's ('58 B.S., '60 DVM) legacy after his death is as big as his devotion to medical health research that benefits both animals and people was during his lifetime. Dr. Hill served in the

navigation department on an aircraft carrier during the Korean War before coming to WSU in 1954. He went on to the University of Pennsylvania in the mid-1960s to earn a certificate in cardiology and a master of medical science in cardiology from the Division of Graduate Medicine in the School of Medicine. He was chief of surgery at the Oregon Regional Primate Research Center for 20 years before retiring in 1988. But WSU was where his professional career started and where he wanted to leave his legacy.

Dr. Hill became a Silver Laureate in 2015 for his generous giving to WSU, providing funds for six postdoctoral fellowships through

charitable gift annuities to support veterinary students furthering their education:

- The John A. Hill Postdoctoral Fellowship for Cattle Medicine and Surgery, named after his father
- The Caroline R. Hill Postdoctoral Fellowship in Veterinary Clinical Pathology, in memory of his mother
- The John D. Hill Postdoctoral Fellowship in Small Animal Surgery
- The John D. Hill, DVM Postdoctoral Fellowship in Radiology
- The John D. Hill, DVM Postdoctoral Fellowship in Oncology
- The John D. Hill, DVM Postdoctoral Fellowship in Anesthesiology

A quiet man, who didn't like public accolades, Dr. Hill was deeply touched by a statue given to him by Bryan Slinker, the dean of the college, for his support of the WSU College of Veterinary



John Hill



John Hill (right) with Bryan Slinker,
dean of the college

Medicine. He kept it prominently displayed on an end table in his apartment. Dean Slinker always looked forward to his visits with Dr. Hill because, besides always having interesting discussions about his many accomplishments, he was such a gentle soul.

Words by his classmate, Dr. Roger McClellan, eloquently describe the man Dr. Hill was, and the impact of his legacy. "John was a true Cougar. He was a quiet and reserved man whose contributions to understanding both animal and human diseases will go relatively unheralded, remembered only by those of us who had the pleasure of enjoying his friendship on the walk of life."

[Awards and Achievements]



A fond farewell to **Dr. Kathleen Potter**. After 36 years in the Department of Veterinary Microbiology and Pathology, Dr. Potter retired in December 2016. She first came to Pullman as a graduate student in 1980 and then went on to make important contributions in pathology and training residents, the role she says she will miss the most.

CONGRATULATIONS TO THE 2016 JERRY NEWBREY TEACHING SCHOLARS!

The Newbrey Teaching Scholar is awarded for excellence in teaching during the first three years of the veterinary core curriculum. This award is given in memory of Jerry Newbrey, who joined the College of Veterinary Medicine faculty in 1975, and who died too young in a climbing accident in 1990. Jerry was an exceptional teacher and student advocate. Those who receive this award richly deserve our appreciation for their commitment to our students and to excellence in the classroom.

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|-------------------|----------------|-------------------|
| Annie Chen-Allen | Joseph Harding | Peter Meighan |
| Cleverson deSouza | Donald Knowles | Patricia Talcott |
| Cynthia Faux | Steve Lampa | Katherine Wardrop |
| Tamara Grubb | Pamela Lee | Patrick Wilson |
| Gary Haldorson | Robert Mealey | |

Fellowship Helps Fund a Love of Pathogens

by Marcia Hill Gossard '99, '04

In a light-filled laboratory, Nick Negretti grows bacteria.

"I love pathogens," says Negretti, who is a graduate student in the WSU School of Molecular Biosciences. "They are so interesting. In each of us, there are more bacterial cells than human cells," he says. "And while most bacteria are helpful, there are a few that make us sick."

Negretti works in the lab of WSU professor Mike Konkel, a leading expert on the food-borne pathogen *Campylobacter jejuni*. Often found in the intestines of chickens, *C. jejuni* is the most common bacterial cause of human food poisoning in the world. Symptoms include diarrhea, nausea, and vomiting that can sometimes result in death. In the United States alone, the Centers for Disease Control estimate 1.3 million people are infected each year. By understanding how bacteria make people ill, Konkel and Negretti's work could help develop new therapies for disease prevention.

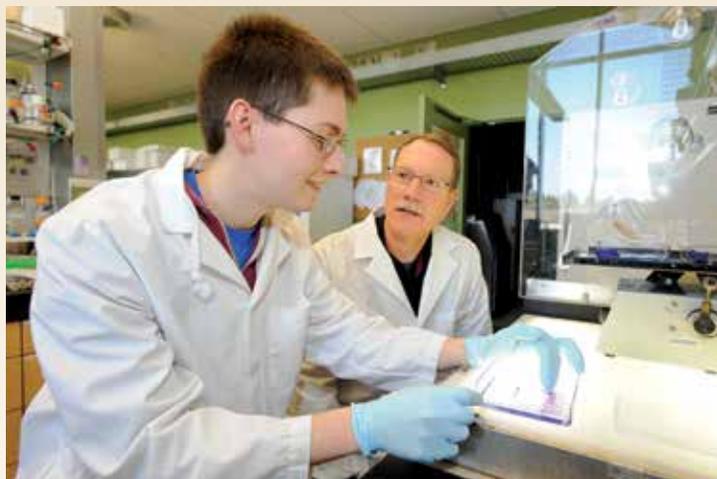
But like most university labs, Konkel depends on grant money to fund ongoing, long-term research. When he learned there would be a gap in funding because of timing between grants, his lab was able to continue research without interruption because of funds from the Charles and Audrey Drake Fellowship*.

"The funds from the Drake Fellowship really helped," says Konkel. "This type of bridge funding is critical because preliminary research is necessary to apply for grant money." Konkel and his team are now funded by a grant from the National Institutes of Health.

For Negretti, who began his undergraduate studies in the STARS program, it meant that he could continue his research and stay on track to graduate in 2019. STARS, which stands for Students Targeted toward Advanced Research Studies, gives exceptional undergraduate students the opportunity to begin doing research their first year and finish their doctorate in as few as seven years.

"Coming to college, I knew I wanted to do research, and the STARS program is a good way to get involved in research right from the beginning," he says.

**Funds from the Charles and Audrey Drake Fellowship in Honor of Dr. A.T. Henrici are awarded to promising researchers in microbial ecology. Charles Drake was a professor of bacteriology and public health at WSU from 1944–1981 and studied under Dr. A.T. Henrici at the University of Minnesota.*



Nick Negretti (left) and Dr. Mike Konkel.

Negretti came to WSU in August 2011 right out of high school, and had applied to the STARS program. "I didn't get in my first semester," he says. Undaunted, he applied again, was accepted, and went on to finish his bachelors of science in just three years. Now a graduate student, he has worked in Konkel's lab almost from the beginning. "The best way to learn is to jump in feet first," he says.

In August 2016, Negretti and Konkel visited the Howard Hughes Medical Institute's Janelia Research Campus in Virginia where they used one-of-a-kind, high-definition microscopes to understand better how *C. jejuni* bacteria bind to the host cells in the intestine.

Host cells change their behavior because of the bacteria, says Negretti, and the only way to understand the tools bacteria use to get a cell to do something it wouldn't normally do is with a high-definition microscope.

"Nick is addressing questions that can only be answered using a highly specialized microscope," says Konkel. "We are lucky to go to the Advanced Imaging Center at Janelia."

Negretti is hoping to learn more about how bacteria bind to the host cells in the intestine and how that interaction changes both the host cell and the bacterial cell. "It will give us a better idea how it [bacteria] manipulates the cell," he says. "This is a very valuable piece of information." That information will lead to new questions and answers. "Letting the science happen," he says.

After he graduates, Negretti wants a postdoctoral research position. After that, "I will see where life is," he says. And where life and science take him.



To learn more about how your gift can make a difference, please visit www.vetmed.wsu.edu/GiftsinAction.

Look for Gatherings of WSU Alumni, Friends,
and Students at these Upcoming Events!

Mark your calendars

Peter A. Zornes Memorial Golf Tournament

The tenth annual Peter A. Zornes Memorial Golf Tournament will be held on **Saturday, July 15, at the Colfax Golf Club** to benefit the Peter A. Zornes Memorial Neuroscience Scholarship at WSU. To register, visit vetmed.wsu.edu/Zornes or contact Lynne Haley at lhaley@vetmed.wsu.edu or 509-335-5021. Remember to invite your friends to play!

July 21 Alumni reception at American Veterinary Medical Association in Indianapolis, Indiana

October 21 College hosts Homecoming Pre-Game and CE event in Pullman (vs. Colorado)

CE courses at WSU and online are offered year round; visit www.vetmed.wsu.edu/CE for more information.

For more information about upcoming events visit www.vetmed.wsu.edu/Events.