

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

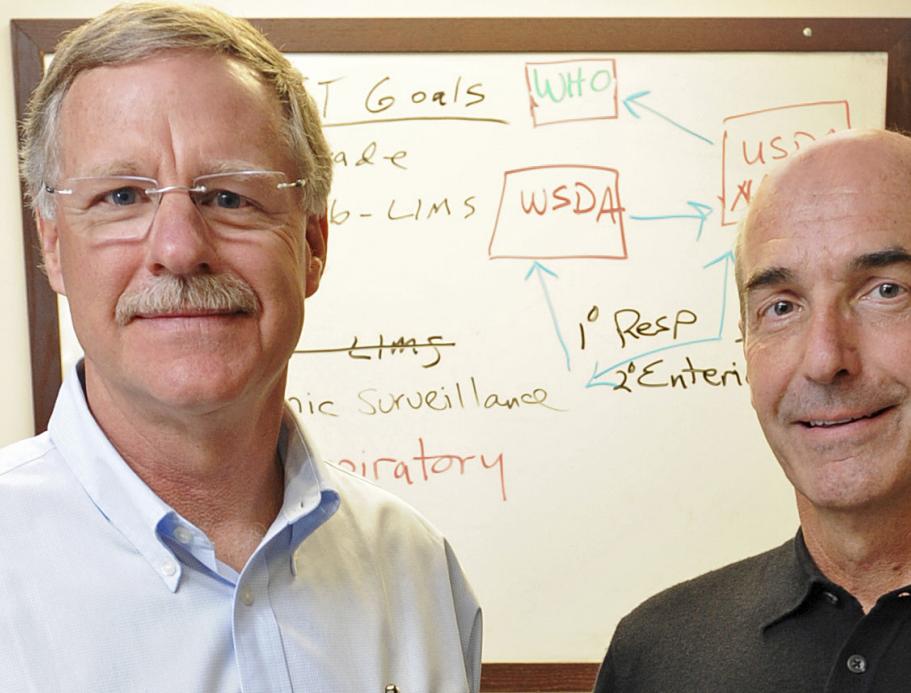
Fall 2014



College of
Veterinary Medicine

The Disease Detectors

How the Washington Animal
Disease Diagnostic Laboratory
has been protecting our region
and the nation for 40 years.



Dr. Terry McElwain, executive
director of the Washington Animal
Disease Diagnostic Laboratory

Dr. Tim Baszler, director of the
Washington Animal Disease
Diagnostic Laboratory

[Message from the Dean]



Dean Bryan Slinker,
WSU College of
Veterinary Medicine

Advance Healthy Animals, Healthy People, Healthy Planet

WSU College of Veterinary Medicine

Marcia Hill Gossard '99, '04
Editor and writer
mgossard@vetmed.wsu.edu

Photos by
Henry Moore Jr.
WSU/BCU

Contributing Writers

Dr. Bryan Slinker '80, '82
Dean of the college

Lynne Haley '94
Director of Development

Veterinary Development and External Relations

WSU College of
Veterinary Medicine
PO Box 647010
Pullman, WA 99164-7010
509-335-9515
www.vetmed.wsu.edu

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I have been reflecting the past few days about what binds those of us who care about this college—your College of Veterinary Medicine.

We recently held our annual Dean's Reception and Celebration of Excellence in Seattle and had a great turnout of alumni and friends. I was struck by the diversity of connections in our extended college family among those in attendance. Some were Cougs. Many were not. And among those not blessed by being Cougs, were Huskies. Some were veterinarians. Many were not. Among the veterinarians were those with careers in small and large animal private practice, laboratory animal medicine, shelter medicine, basic biomedical science, and the pet health care industry. Non-veterinarians were social workers, engineers, organizational consultants, financial advisors, and developers—among others—some of whom have significant connections to other colleges at WSU. Many are also strong supporters of other organizations with whom we share interests and aspirations, including the Fred Hutchinson Cancer Research Center, the Seattle Humane Society, and the Woodland Park Zoo.

What connected us that night as diverse members of the large extended college family was a shared commitment to animals that comes in many forms: Vaccinating dogs in Tanzania to save the lives of Maasai children; preserving the human-animal bond by keeping our animal companions healthy and happy; conducting research that pushes the leading edge of human and animal health in ways we could not have conceived of a few years ago; or protecting the quality and safety of our food supply. Whatever form our commitment takes, we come together because of what animals mean to us and how

together we advance animal and human health and wellbeing.

There were two major takeaways from the evening that I want to highlight. First, we very much need a new Magnetic Resonance Imager (MRI) in our Veterinary Teaching Hospital. Dr. Annie Chen-Allen told of her brain tumor research program, and how it depends on the MRI. As with many things these days, we will in turn depend on the generosity of many of you in our extended family to raise much of the \$2.5 million needed for the new MRI. I am very pleased to report that to date we have secured commitments of nearly \$900,000 toward this goal, \$250,000 of which depends on garnering matching gifts. That is a great start, but you will continue to hear about this priority need. Second, Dr. Chen-Allen and our college were presented with a grant from the Kathi Goertzen Foundation. I can think of no better example of our connectedness than to have Rick Jewett, Kathi's husband, and the Kathi Goertzen Foundation board there to award our college a grant to study brain cancer in dogs, which will help us improve the care of animals while at the same time advancing the care of humans. These connections run so deep that we learned one of Kathi and Rick's dogs had also been taken by brain cancer, and had been treated by one of our veterinary alumni in the room, Dr. John Kelly ('73 DVM) at Elliot Bay Animal Hospital in Seattle.

Let's stay connected—we can do so much together.

Go Cougs!

A handwritten signature in black ink, appearing to read "B. Slinker".

Dr. Bryan Slinker, Dean
WSU College of Veterinary Medicine

Antibiotic Resistance:

What the WSU Paul G. Allen School for Global Animal Health is doing to help solve this global health crisis.



Dr. Douglas Call (left) with Beatus Lyimo, a graduate student at the Nelson Mandela African Institution for Science and Technology. They are working in the lab at the Mandela Institution where Dr. Call and his team process samples to analyze for antibiotic resistance.

Bacteria can do something remarkable. They can share genes. So, if one bacterium is resistant to a particular antibiotic, such as tetracycline, it can pass that resistant gene to another bacterium. That bacterium will become resistant and can pass its resistant gene to another bacterium. And they can keep the resistance for a long time. That allows antibiotic resistance to spread widely.

This highly adaptable behavior, while good for bacterial survival, poses a major risk to human health. Treatments for common infections are becoming ineffective in some parts of the world according to a recent report by the World Health Organization. Globally there are already very high rates of antibiotic resistance for urinary tract infections and pneumonia.

Standard recommendations to reduce antibiotic resistance include using antibiotics only when medically necessary. The FDA recently released guidelines to discontinue the use of antibiotics in food animals who are not showing signs of illness. U.S. prescription guidelines for people are created to help ensure antibiotics are only prescribed when someone has a bacterial infection, not a viral illness. Both will have some impact. But according to researchers at the Paul G. Allen School for Global Animal Health, it is unlikely to do enough.

"Treatment guidelines in the United States alone are not sufficient to solve the problem," said Guy Palmer, director of the Allen School. "The movement of people and food makes it a global issue."

In many parts of the world, antibiotics are sold over the counter or the quality of the antibiotics is not well regulated, said Palmer. And because the spread of resistant bacteria is accelerated by travel and transporting food, or by more people moving into urban areas—particularly those with poor sanitation—the problem is much more complicated.

Scientists at the Allen School are taking several approaches to understand the emergence and spread of antibiotic resistance. Researchers are looking at the transmission of resistant bacteria (how it spreads from animals to animals or animals to humans), and how bacteria maintain their resistance to antibiotics. They are also identifying reservoirs, such as untreated water or soil that can harbor resistant bacteria. Many reservoirs also provide ways for bacteria to travel.

"Untreated water is also a means of transmission," said Palmer. "We want to learn what the transmission pathways are and how they can be decreased."

Dr. Douglas Call, professor in the Allen School, is currently conducting research in east Africa with the Nelson Mandela Institution in Arusha, Tanzania, to better understand how resistant bacteria move between animals and between humans and animals. Tanzania provides an ideal setting for understanding how resistant bacteria travel. Locally raised domestic livestock, people, and wildlife live close together, which offers a unique research opportunity, said Call. People routinely come in contact with animals, share water, transport animals, and prepare food—all things that can spread resistant strains of bacteria. Because the problem is truly global, resistant bacteria found in east Africa can travel across the world.

The transmission of resistant bacteria or the number of reservoirs can be changed, says Palmer. Through their research they expect to find ways to mitigate transmission pathways and reduced the number of reservoirs.

"Resistance from antibiotic use is inevitable," said Palmer. "But the consequences and rate of spread are not inevitable. We can minimize the spread and emergence of resistance."

 *Learn more about the antibiotic resistance program at the Allen School at go.wsu.edu/Resistance*

The Disease Detectors

How the Washington Animal Disease Diagnostic Laboratory has been protecting our region and the nation for 40 years.

We help our region, our nation, and the world.

—Dr. Tim Baszler, director of the Washington Animal Disease Diagnostic Laboratory



Each year, WADDL scientists run over 25,000 tests to certify fish are free of infectious diseases. The aquaculture industry in the Pacific Northwest, which shares international borders with Canada and the Pacific Rim, relies on testing for domestic and international trade of fish and fish products in the global market.

A new bird flu is discovered half way around the world. Thousands of wild birds have been affected, and it is only a matter of time before it begins to spread globally. Scientists at the Washington Animal Disease Diagnostic Laboratory at Washington State University immediately begin developing tests to identify the disease, so if it appears in our region, they can detect it before an outbreak.

Although this example is fictitious, it is the type of disease surveillance that has been done by the lab since 1974. As one of the 12 core member laboratories in the National Animal Health Laboratory Network, WADDL (pronounced waddle), as it is commonly known, is on the frontline of disease detection, food safety, and testing for bioterrorist agents in the Pacific Northwest. WADDL and other laboratories in the network provide national and regional surveillance, including an emergency response system in the event of an outbreak.

On the Frontline of Disease Detection

"When we do disease surveillance for animals, we are also doing it for public health," said Dr. Tim Baszler, who has been the director of the Washington Animal Disease Diagnostic Laboratory for six years.

As the only animal disease laboratory in Washington State, WADDL is at the forefront of detecting and diagnosing diseases in animals—diseases that could also spread to humans. Mad cow and avian flu are just two examples of zoonotic diseases WADDL can test for, said

Baszler. WADDL is just one of six labs in the country that tests for mad cow disease.

Zoonotic diseases can spread quickly because of travel and global commerce, including the transport of animals. And improved surveillance can also provide information about how disease is transmitted from animals or animals to humans.

Besides testing for known zoonotic diseases, scientists at WADDL also use surveillance to identify newly emerging diseases. For example, if a veterinarian tests for a disease that they don't recognize immediately, they will send it to WADDL for further testing. Each year surveillance detects emerging diseases and WADDL is part of that effort.

"Seventy percent of emerging diseases come from animals," said Dr. Terry McElwain, executive director of the Washington Animal Disease Diagnostic Laboratory. "The lab is a frontline defense of new diseases."

Working to Keep Our Food Supply Safe

Foreign animal diseases such as mad cow and foot-and-mouth disease can devastate a cattle herd. For any highly infectious disease, surveillance and rapid testing is vital for preventing the spread of disease and keeping our food supply safe.

"We can give results in hours," said Baszler. "For veterinarians,

lab confirmation is the frontline for surveillance."

Such fast response helps get sick animals quarantined sooner, which is critical for fast spreading diseases. But knowing quickly, can also help prevent serious economic consequences.

"Testing is essential for trade and the economy," said Baszler. "Industries in our state depend on the laboratory to allow for the movement of animals and food products."

The aquaculture industry in Washington State, for instance, relies on testing to export their products such as salmon eggs or fish. Together with state, tribal, federal and aquaculture industry partners, WADDL works to prevent the introduction of catastrophic diseases that could devastate farmed and wild salmonid fish stocks. And that is vital to economic stability and growth in the Pacific Northwest.

WADDL scientists also test for common bacteria that cause food poisoning such as E. coli, salmonella, and listeria. According to the Centers for Disease Control and Prevention, these food-related illnesses affect millions each year and can result in hospitalization or death.

"Our food safety testing has grown over the last 20 years, and is particularly important to the poultry producers and regional food suppliers," said Baszler. "Every day we go to work, we are helping to feed the world."

A Living Laboratory: Driving Research and Training Future Scientists

WADDL, a state animal health laboratory, is uniquely sited at Washington State University. "We are a laboratory serving the state and public good in a university setting," said McElwain. And that has its advantages.

The lab provides education and training to students so they are ready to handle new and existing emerging diseases. They

also learn about disease surveillance and its importance. And this, says McElwain, makes it a living laboratory for training. "We have a training program that includes veterinary students, undergraduate students and veterinary residents in pathology and microbiology," said McElwain.

Researchers at WADDL and the WSU College of Veterinary Medicine work to develop diagnostic tests and vaccines, and that leads to technology transfer to the field. Resources and collaboration with faculty at WSU has helped develop new types of tests for diseases such as sheep scrapie, a fatal disease affecting the nervous system of sheep and goats. If there is a disease outbreak, scientists at WADDL and in the college can collaborate to find the best solutions.

"Programmatically it is win-win," said Dr. Bryan Slinker, dean of the WSU College of Veterinary Medicine. "If there is an outbreak in this region, we are the place."

Building for the Future

"WADDL is one of the leading labs in the country," said McElwain. "We are not just any other state animal laboratory."

Because of its unique role within the University, the state, and the region, there are plans to build enhanced facilities for its 70 employees by 2017. The new building will improve regional and national animal health surveillance capabilities and expand the global disease surveillance program in partnership with the Paul G. Allen School for Global Animal Health. The new facilities will also create new educational opportunities for WSU undergraduate, graduate and veterinary students.

"We help our region, our nation, and the world," said Baszler.

 *Learn more about WADDL at waddl.vetmed.wsu.edu*



WADDL is only one of six labs in the nation that tests for bovine spongiform encephalopathy, commonly known as mad cow disease. Without early disease detection, it could have devastating consequences to animal health, trade, and the economy.

WADDL Offers Services to Help Veterinarians and Their Patients

As a full-service laboratory for all species of animals, the Washington Animal Disease Diagnostic Laboratory can help veterinarians in our region better serve their patients. The lab provides diagnostic testing for serious infectious diseases that affect dogs and cats such as canine distemper and feline coronavirus, or they can test tumors to help rule out cancer. They also offer testing for horse diseases including West Nile fever, equine infectious anemia virus, as well as nutritional deficiencies. More information on our services go to waddl.vetmed.wsu.edu.

[From the Office of Development and External Relations]



Lynne Haley,
Director of
Development

The MRI campaign is off to a great start! More than 200 faculty and staff at the college attended the MRI Campaign BBQ hosted by the WSU Veterinary Teaching Hospital in July. The MRI Giving Tree was placed on the wall and many generous friends added early leaves. Thanks to an early gift from the Pet Memorial Program of \$25,000, we are well on our way. And as you read in Dean Slinker's column, we have secured commitments of \$900,000 toward our goal. Although we are on our way to meeting the

\$2.5 million needed for the new MRI, we can't reach it without you. We thank all of you who have already helped support this very important campaign. Your generosity will help improve the lives of countless animals.



*For more information about our
MRI campaign visit
[www.vetmed.wsu.edu/
Giving/MRI](http://www.vetmed.wsu.edu/Giving/MRI)*



MRI Giving Tree in the WSU Veterinary Teaching Hospital lobby

As the only place in the Pacific Northwest and western Canada that offers high-field MRI (the nearest comparable MRI machine is more than 800 miles away from Pullman), we are proud to serve the region helping animals large and small. In the last five years, more than 2000 animals—dogs, cats, horses, bald eagles, grizzly bears, sheep, and even a ferret—have received MRI scans at WSU.

[Awards and Achievements]



Bill Davis, associate dean for undergraduate education in the college, received a \$500,000 grant from the National Science Foundation to improve undergraduate education in the life sciences. Through the Partnership for Undergraduate Life Sciences Education, or PULSE, the grant supports annual regional training to improve curriculum and promote student-centered, active learning. The Northwest PULSE regional network includes institutions ranging from community colleges to research universities across Alaska, Idaho, Montana, Oregon, Washington, and Wyoming.



Terry McElwain has been appointed to the 15-member board of the newly created Foundation for Food and Agricultural Research that will advance the USDA's research mission. Through public and private resources the non-profit foundation will fund scientific and technological research, innovation, and facilitate needed partnerships to strengthen the U.S. agricultural economy. At WSU, Dr. McElwain is a Regents Professor and currently serves as associate director of the Paul G. Allen School for Global Animal Health and is the executive director of the Washington Animal Disease Diagnostic Laboratory.

Your Gifts in Action

We Are Feeding Our Patients Even Better Thanks to a New Diet Kitchen

Feeding our patients the very best nutrition got a whole lot easier thanks to a partnership between WSU and the Nestlé Purina Center for Nutrition Excellence program. In the spring of 2013, the Veterinary Teaching Hospital received the state-of-the-art dietary kitchen thanks to a \$70,000 gift from Nestlé Purina to the college.

"Nestlé Purina partnered with Washington State University to install a state-of-the-art diet kitchen, which provided a significant upgrade to the hospital's facilities," said Emily Cross, Purina Senior Veterinary Communications Manager.

With the diet kitchen, veterinary students, residents and faculty have easier access to a wide variety of therapeutic diet brands for hospitalized animals. A computer workstation inside the kitchen allows students and veterinarians to use special nutrition software to calculate optimal diets depending on a patient's needs. There are also dispensers for dozens of dry and canned pet foods that makes it easy to prepare the special diets required by hospital patients.

"The organization in the kitchen is very helpful in making diet recommendations based on patient conditions," said Matt Mickas, WSU small animal veterinarian.

For oncology patients, for instance, who greatly benefit from additional calories and high quality nutrition, the kitchen can help veterinarians easily find the optimal diet plan.



(l-r) Emily Cross, Purina Senior Veterinary Communications Manager; Bryan Slinker, dean of the college; Ainsley Bone ('11 DVM); Harmon Rogers, former director of the Veterinary Teaching Hospital.

"When animals are really sick they can have food aversions," said Rebekah Lewis, a WSU oncology resident. "Having a variety helps a lot because we can try different foods." Lewis explained that maintaining a good quality of life for patients is the goal. "We want them to be as happy and comfortable as we can," she said.

"By providing ready access to optimally formulated diets, the kitchen enhances the care and recovery of small animal patients," said Deb Sellon, director of the Teaching Hospital. "It also is a great educational tool to help veterinary students better understand how important nutrition is in a comprehensive medical care plan for their patients."

Nestlé Purina also supports the WSU Pet Loss Support Hotline, the Veterinary Clinical Communications Program, senior papers, scholarships, and our Transitions Ceremony for third year students.



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

- December 8** Alumni reception at the American Association of Equine Practitioners Conference in Salt Lake City, Utah
- February 16** Alumni reception at the Western Veterinary Conference in Las Vegas, Nevada
- April 11** College of Veterinary Medicine Open House in Pullman
- July 13** Alumni reception at AVMA in Boston, Massachusetts

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.

