

VETERINARY *Executive Report*



BSE Strikes Washington, Nation Renewed call to veterinarians for vigilance

DECEMBER 23, 2003, will long be remembered in animal history, the day the first case of bovine spongi-form encephalopathy (BSE), known more commonly as "mad cow disease," was confirmed in Washington state.

"It was an announcement we long feared would come true," said **Dr. Clive Gay**, who heads up the WSU veterinary college's Field Disease Investigative Unit.

Within hours of the announcement, Dr. Gay fielded questions from reporters from coast to coast, and around the world, as many Americans tried to make sense of the information they received.

Answering the call

The intense media pressure lasted for days until the Agriculture Department finally arrived on scene. Public Information Officer Charlie Powell said, "It's just unfortunate for the industry it was this disease. All in all, I'm grateful for WSU's overall response, including our faculty and staff in the veterinary college as well as colleagues and faculty in the agriculture college."

In the weeks that followed, the science of BSE began to overtake emotions. In a private interview at the American Veterinary Medical Association's Leadership Conference in January, USDA Chief Veterinary Officer **Dr. Ron DeHaven** told us, "Our key indicators of success are that the price of beef has stabilized, and consumer confidence has returned."

Veterinarians to play key role

Attention is being focused in many areas of the investigation but none more important than increased vigilance to prevent another outbreak.

"Veterinarians have a key responsibility in this issue," said Dr. DeHaven. "The more each practitioner knows about this disease and understands the safeguards that we've put in place, the better they can assure the general public they serve and interact with."

This position is echoed by Washington State Veterinarian **Dr. Kathleen Connell** (WSU '91, see her story on page 3). "Veterinarians are on the front lines of detecting disease in this country," said Dr. Connell. "It's the new responsibility in the new era." Recent history has shown that veterinarians are often the first to see infectious disease, from exotic Newcastle disease and West Nile virus outbreaks to the first U.S. discovery of monkey pox. Dr. Connell believes "the animal population is our early warning system."



WSU Animal Disease Diagnostic Lab takes center stage

A renewed emphasis on testing puts the Washington Animal Disease Diagnostic Laboratory at WSU at the forefront of keeping the food supply safe. Currently, the lab performs testing for a variety of animal diseases. "The biggest challenge is rapid turnaround of results," says WADDL Executive Director **Dr. Terry McElwain**.

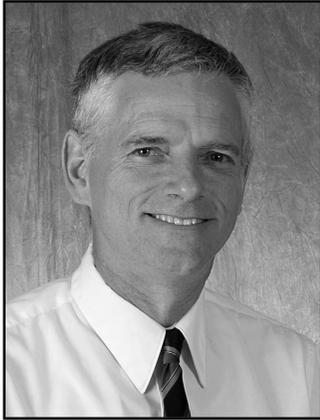
"When it comes to future BSE testing, the lab stands ready. It's clear, there's a role for us. The national labs just don't have the capacity. We have the expertise, and the experience, to provide rapid turnaround, in 24 to 48 hours, that is absolutely necessary."

In fact, WSU pioneered the first practical preclinical test for TSE in sheep (also known as scrapie). WADDL can even provide immunohistochemistry on various diseases. "Policies have been approved by the USDA that pave the way for foreign animal disease testing by state labs. This will happen very shortly for foot-and-mouth disease, classic swine fever and others. There is no reason state laboratories cannot address these same issues for BSE testing," Dr. McElwain said.

Inside...

- Protecting our food supply
- Largest single gift ever received
- Saving Pakistan's vultures

Cutting-edge research of the human kind



Dr. Warwick Bayly

IT SEEMS THAT every day a new headline reports another emerging disease that threatens animal or human health. From BSE to severe acute respiratory syndrome (SARS) to the West Nile virus, the challenges have been to generate a rapid response to each emerging threat, as well as to provide information critical to the public's understanding of the disease. This allows science

to put a reasonable perspective on what is often a strongly emotional lay response. WSU's veterinary college has a long and successful legacy of helping battle established and emerging infectious diseases.

Critical research

In fiscal year 2003, the veterinary faculty conducted nearly \$11 million in competitively funded research, placing us in the top tier of all veterinary colleges in these efforts.

The subjects of this combination of agricultural and biomedical research include: vector-, food- and water-borne diseases, neurobiology, immunology, infectious disease, microbial genomics and proteomics. The results have been phenomenal.

Results

After four years of investigation, researchers in WSU's Department of Veterinary Microbiology and Pathology have completed the genomic sequencing and annotation of the *Anaplasma marginale* genome. Already, it's being hailed as a significant breakthrough in the study of the economically expensive and potentially deadly cattle pathogen.

In avian disease research, our own **Dr. Lindsay Oaks's** work has led to the co-discovery of what has been killing off Asian vultures in Pakistan and the surrounding region. A modern pharmaceutical medicine for the treatment of cattle diseases, diclofenac, a nonsteroidal anti-inflammatory agent, appears to be the cause, according to Dr. Oaks's Jan. 28 paper published in the prestigious journal, *Nature*.

Also in January, the drug company PriTest turned to the same department's **Dr. William Davis** to develop an inexpensive diagnostic test for bovine tuberculosis.

Our magnetic resonance imaging team brought together an international group of top equine practitioners and academicians for a first-ever chance to see these incredible advances.

Discoveries within reach

But the research isn't just about animals. It's about the human component as well. Remarkable work of direct relevance to people continues in many areas, including cancer therapy, the spongiform encephalopathies, heart disease, neurobiology and orthopedics. For example, we've joined with the Spokane Alliance for Medical Research to focus on sleep and sleep-related problems. Our researcher, Dr. Jim Krueger, has just begun to make exciting discoveries in such areas as excessive sleepiness and insomnia, problems that affect one-third of us.

We've also teamed up with Livermore Laboratories in developing a live animal test for BSE, using our award-winning research with scrapie as a model.

To me, this is very exciting and rewarding as additional innovations and discoveries are seemingly just around the corner.

Detection and prevention

Your veterinary college continues to remain on the forefront of disease detection and control. Last year, the National Institutes of Allergy and Infectious Disease began working with our college to develop a Zoonoses Research Unit. This funding further consolidates a core of highly trained experts that can be called upon should there be a national or regional public health threat to render additional services. Research within this unit has already begun to produce rapid, cost-effective methods to identify, prevent and treat food- and waterborne-disease agents.

Breakthroughs like these are not easy, nor do they occur without a dedicated faculty and staff who have a great ability to identify and understand major disease issues and to secure funding to address those societal needs. Only after years of intense research does the science yield effective treatments and cures.

You play a critical role

Finally, you are a key player in this effort as well. Your continued support of our work plays a critical role in the protection of both animals and people.

Your support comes in many ways, from case referrals to volunteerism to providing, generating or identifying gifts for this college. For each effort, I extend my sincerest thanks and appreciation on behalf of all the staff, faculty and students in your College of Veterinary Medicine.

WSU research team lands \$9.9 million grant



WSU animal and human disease research group (l. to r.): Monica Borucki, Dan Rice, Rowland Cobbold, Frank Loge, Douglas Call, Tom Besser, John Gay, Dale Hancock and Clive Gay

THE NATIONAL INSTITUTES OF HEALTH has turned to WSU to help in the fight against food- and waterborne-disease agents, such as *E. coli*, *Listeria* and *Salmonella*. Nine WSU researchers primarily from the WSU veterinary college helped land a \$9.9 million grant to conduct research and develop products to rapidly identify, prevent and treat these types of disease.

The grant is the result of more than a decade of the WSU group's work in food safety, funded by a broad

spectrum of public and private agencies. Most recently, this support also included the 2000 Washington Legislature's Safe Food Initiative.

"This contract is a testament to the value returned on the state's investment in food safety and to the world-class value of our faculty," said **Dr. Warwick Bayly**, dean of the WSU College of Veterinary Medicine. "The grant supports a multidisciplinary approach to disease research and prevention with colleagues in the WSU College of Agricultural, Human and Natural Resource Sciences, as well as the Department of Civil and Environmental Engineering, working with those in the College of Veterinary Medicine to investigate a number of zoonotic and foodborne diseases," he said.

The animal and human disease research group at WSU is part of the new National Food- and Waterborne Diseases Integrated Research Network. In the event of a national or regional public health threat, the new WSU unit can be redirected to respond with its research efforts toward specific disease agents.

"They will utilize a variety of the latest technologies, from global positioning systems to microbial genomics, in their efforts to study and control these diseases from every angle. This integration of research provides Washington with extraordinary safeguards, trade advantages and the ability to have some of the world's best disease researchers working on our behalf," Dr. Bayly said.

WSU researchers sequence important tickborne cattle pathogen

WSU RESEARCHERS have provided a significant breakthrough in the study of anaplasmosis, an important cattle disease. Researchers in WSU's Department of Veterinary Microbiology and Pathology, along with the Animal Disease Research Unit of the USDA Agricultural Research Service, have completed the sequencing and annotation of the 1,197,687 base pair *Anaplasma marginale* genome.

The sequenced strain of *A. marginale* was collected at the WSU Veterinary Teaching Hospital from an animal from St. Maries, Idaho, and subsequently was called the St. Maries strain.



WSU veterinary microbiology and pathology/USDA researchers (l. to r.): David Tibbals, Travis McGuire, David Herndon, Lowell Kappmeyer, Kelly Brayton, Guy Palmer, Donald Knowles and Michael Dark

"Determining the genomic details of *A. marginale* provides tremendous future opportunities in research," said **Dr. Kelly Brayton**, lead project scientist and an assistant professor in VMP. "Now we have the ability to compare the genomes of multiple strains of *A. marginale*, which differ in their ability to be transmitted by ticks, and to enhance progress toward vaccine development.

"We have initiated the sequencing of a second strain of *A. marginale*, the Florida strain," Dr.

Brayton said. "This allows us to analyze the differences between the two strains using a comparative genomics approach. We have learned a great deal since the first project, so this subsequent genome will be easier."



Extinction threat to rare vultures linked to cattle pharmaceutical



WSU veterinary researcher leads discovery

MILLIONS OF VULTURES once circled the Indian subcontinent. Yet over the past 10 years, those numbers have been reduced by as much as 95 percent, putting three key vulture species on the “extremely endangered list.”

Dr. Lindsay Oaks of the WSU veterinary college led the team that unraveled the mystery that has challenged scientists for years. Dr. Oaks’s research, recently published in the prestigious journal *Nature*, makes a powerful case that the birds were poisoned by diclofenac, a widely used painkiller and anti-inflammatory agent used regionally in domestic livestock.

Cultural concerns

Vultures worldwide are natural scavengers, with their main diet consisting of wildlife and domestic carrion. People of the Parsi faith, because of religious tradition, avoid contamination of the earth and must leave dead animals to vultures for disposal. The research indicates that animals treated with diclofenac that then die pass along the pharmaceutical to the feeding vultures. In nearly 85 percent of the cases examined, the cause of death in vultures was attributed to a “total renal failure.”

Virus feared

“When I was first contacted,” said Dr. Oaks, a veterinary microbiologist, “we feared a virus was to blame.” But time and the death rate quickly pressured the research team. “We knew the numbers were dropping off rapidly. In areas where there had once been thousands of mating pairs, we saw the numbers drop to just a few hundred, then they disappeared entirely,” said Dr. Oaks.

War threatens research

In 2001, U.S. military operations in Afghanistan nearly put an end to the project. “Many of the sites we were monitoring are along the Pakistan border, less than 50 miles from the fighting,” said Dr. Oaks. “If it wasn’t for e-mail, we might not have been able to continue our work.”

A key mystery—solved!

What bothered Dr. Oaks was the complete kidney failure seen in so many vultures, which had otherwise been in good physical condition. His hypothesis, which proved to be correct, was that something other than a virus was to blame. When records were examined, widespread veteri-

nary use of diclofenac in South Asia closely paralleled the vultures’ population decline. Tissue toxicology tests at WSU confirmed his suspicions.

“This discovery is significant in that it is the first known case of a pharmaceutical causing major ecological damage over a huge geographic area and threatening three species with extinction,” said Dr. Oaks.

Focus now on prevention

In early 2004, Dr. Oaks traveled to Nepal to meet with government officials from both Pakistan and India to present the team’s findings and propose possible solutions to the impending extinction.

The study was commissioned by the Peregrine Fund of Boise, Idaho, and included team members from the Ornithological Society of Pakistan, Bird Conservation Nepal, Zoological Society of San Diego, National Wildlife Health Center, University of California and University of Idaho.



Long-billed vulture
Courtesy of the Peregrine Fund

Former newspaper editor, wife leave estate to WSU veterinary college

FOR THE LOVE OF ANIMALS, that's the single reason behind the largest private gift ever to WSU. Joseph and Bernice Baily have left the WSU College of Veterinary Medicine nearly \$3 million. The gift is large enough to endow a professorship in animal well-being that will last forever.

Began with bears

As a young girl from Boston, Bernice Gilman was lonely. She missed her friends back home, and in her new home in Spokane, Wash., she found herself constantly picked on because of her accent and the way she dressed. But Bernice said everything changed the day she met the bears.

At the former Manito Park Zoo near her home, she would stop by nearly daily. "I made friends with the zookeeper, who would even let me slip inside the cages," Bernice would tell friends. Her personal favorites were the black and polar bears. But as years passed, the zoo slowly fell into disrepair. When the decision to close it was made, Bernice was heartbroken. It was a personal tragedy that, even late in life, brought tears to her eyes.

Met after Apple Cup

In 1952, Bernice met Joseph Baily, a dashing young writer and accomplished tennis player. The two met at a party following a WSU-University of Washington football game. Joseph recalled the two stayed up late playing Chinese



Bernice and Joseph Baily

checkers. Within one year, they were married. Joseph became the Sunday editor for the *Spokesman-Review* newspaper. A graduate of Stanford, he served in the Army as a writer who sent back dispatches from the front lines in Africa and Italy during World War II.

"Best interest of animals..."

With no children, the Bailys decided to leave their fortune to help animals, based in part on Bernice's connection with the bears from her childhood. "We're happy to give this gift to ensure that the best interest of animals remains forever," a reserved Joseph said just before his death.



"These animals are notorious for hiding pain. We want to unlock their secrets."

—Drs. McEwen and Sellon

Continuing Research

Pain relief for horses

HORSES CAN BE EXPERTS when it comes to hiding pain. That's why **Dr. Debra Sellon** and **Dr. Margaret-Mary McEwen** at WSU's College of Veterinary Medicine are working to identify subtle behavior changes exhibited by horses after arthroscopic surgery.

Unrecognized pain is a common problem following the surgical treatment of joint problems. The results of this two-year study could help veterinarians recognize and treat pain before it becomes severe and lead to shorter hospital stays, with reduced stress on horses.

The WSU team is also working on new treatments for pain relief. By combining phenylbutazone with the narcotic fentanyl, investigators hope to bring horses a new, more effective treatment for pain management.

For more information, contact Dr. Debra Sellon at dsellon@vetmed.wsu.edu or Dr. Margaret-Mary McEwen at mmm32@vetmed.wsu.edu.

From the Development Director



DURING THESE UNCERTAIN TIMES, it is comforting to know that incredible work is being done here that helps to keep all of us safe. That's why joining us with your continuing gifts to specific programs in WSU's College of Veterinary Medicine has never been more beneficial to society.

Critical research

Recent news stories have drawn attention to several public health threats that affect both animals and humans alike. Yet these are areas scientists at WSU's veterinary college have been working on for decades. The recent outbreak of BSE, scrapie, impending foreign animal diseases such as West Nile virus or myriad others each hold their own set of risks and disaster potential. Personally, I'm continually astounded at the contributions our faculty, staff and students make in the protection of human as well as animal health. Make no mistake; WSU's people are among the heaviest hitters in the veterinary community worldwide. As you can imagine, the funding needs for these areas has never been greater or more relevant.

Contributions become part of a lasting legacy

Consider when we fill three endowed chairs here at the CVM. Recall that an endowed chair is a cooperative program between your gifts and state support that

permanently establishes a specific area of interest as a college priority. Further, an endowment is invested so that it is self-funding and cannot be eliminated because of routine budgetary shortfalls or political whim. Thanks to your support and the state's partnership, we have funding to fill these faculty positions within the next year.

While traditional animal care and well-being programs tend to be the focus of the college and most donors, there are also less well-known, but equally important opportunities for giving. These support funds were visionary when established in areas of research that examine both animal and human disease prevention and treatment.

Call for support

If you are a current donor to a WSU research program, I first offer my sincerest thanks and ask that you consider an additional gift to one of these critical programs. If you are not a donor, please consider joining us with a gift of \$1,000 to the college for a specific fund (listed below) that I believe deserves special attention. Once again, I thank you for your time, dedication and unwavering support. With your help, we will continue to make the world a safer place for everyone.

I look forward to seeing you at the WSU Annual Conference for Veterinarians and Veterinary Technicians April 2-3.

Norma C. Fuentes, Director

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Bernice Kent-Washington Animal Disease Diagnostic Laboratory Operations Endowment Fund

Provides support for programs in the Washington Animal Disease Diagnostic Laboratory

Washington Animal Disease Diagnostic Laboratory Development Fund

The only fully accredited, animal disease diagnostic lab in the Pacific Northwest that serves as the "eyes and ears" for animal disease and public health surveillance in Washington

Field Disease Investigation Unit Development Fund

Supports on-farm investigation and resolution of disease in Washington state

Bill and Betty Davis Endowment for Basic and Applied Research in Immunology of Food and Companion Animals

Supports programs to further develop protective immunity against pathogens and parasites, along with helping to develop new and improved vaccines

Richard B. Wescott Parasitology Teaching Fund

Used to enhance the quality of instruction of parasitology in the veterinary curriculum. Provides equipment, specimens, supplies and other necessary teaching materials

Francis and Margery Abinanti Public Health Teaching Endowment Fund

Provides financial support associated with offering public health course(s) to veterinary students

Donald R. Weldin Research Endowment

Provides technical support for equipment in the Veterinary Teaching Hospital that supports research in bovine leukemia virus infection and disease

Sheep Producer Research and Education Support Fund

Funds sheep research and education concerning control of certain infectious diseases

Dan Lowery Animal Well-Being Endowment

Supports educational and research programs in animal well-being and is key to the operation of the WSU veterinary college's Animal Well-Being Center

Achievements



Dr. Terry McElwain received the **2003 E.P. Pope Award**, the highest honor given by the American Association of Veterinary Laboratory Diagnosticians. Dr. McElwain serves as professor and director of the Washington Animal Disease Diagnostic Laboratory and director of the WSU Animal Health Research Center. He authored the monkey pox guidelines for animal testing that demonstrates how veterinary diagnostic labs can act quickly on short notice and are critical resources for diagnosing emerging zoonotic diseases.



Dr. Ahmed Tibary was awarded the **2003 WSU Faculty Member of the Year Award** by the Washington State Veterinary Medical Association in September. Dr. Tibary, a world-renowned large-animal theriogenologist and assistant professor in the Department of Veterinary Clinical Sciences, has been recognized for his extraordinary service to the WSVMA membership through clinical service, continuing education and consultations.



Dr. Krueger, professor in the Department of Veterinary Diagnostic Anatomy, Pharmacology and Physiology was recently named the recipient of the **2003 Award for Research Excellence** by the WSU College of Veterinary Medicine Research Committee. The award recognizes his extensive research in the biochemical regulation of sleep. Dr. Krueger and his team have also been awarded a \$1.5 million grant by the U.S. Department of Defense for sleep research. His research has found that sleep loss affects the expression of certain key molecules. His lab has also shown that injection of these molecules induces physiological changes similar to those seen during sleep loss.



Dr. Cathy Johnson-Delaney, '80, was awarded the **Exotic DVM of 2003 Award** at the International Conference on Exotics in Palm Beach, Fla., last June. She is the first WSU graduate to receive the award. Johnson-Delaney is the attending veterinarian for SNBL USA Ltd. in Everett, Wash., and author of the *Exotic Companion Medicine Handbook*.



Dr. Clive Gay, professor and head of the Field Disease Investigation Unit and Production Medicine, was elected **WSVMA president** for 2004.



Dr. John Gay, professor in the Department of Veterinary Clinical Sciences and the Field Disease Investigative Unit, was elected to serve on the **national AVMA Council on Biologic and Therapeutic Agents**, representing epidemiology at last summer's annual convention.



Dr. Ed Viesturs, '82, is close to becoming only the seventh person to climb all 14 of the world's 8,000-meter peaks without oxygen. Last on his list is the 26,545-foot Annapurna. Of the 100 people who have made this climb, half have died during the descent. Viesturs currently makes his living as a professional climber and speaker.

New Washington state veterinarian tackles BSE outbreak



Dr. Kathleen Connell ('91) has found herself tackling the difficult task of responding to the nation's first case of mad cow disease, a considerable challenge given that she has held the title only a few months.

"Of course, the news came at the absolute worst time, just a few days before Christmas," said Dr. Connell.

But she is no newcomer to the process, serving the past eight years as the assistant state veterinarian. In accepting the job, she spoke openly about the new role of veterinarians to serve as the frontline protectors against disease, words that would prove to ring true.

"The animal population is our early warning system," said Dr. Connell last fall. "If we can prevent or limit spread, that is much less expensive than trying to eradicate."

Looking forward, Dr. Connell advocates all veterinarians to watch for the obscure. "It's the new responsibility in the new era."

For example, small-animal veterinarians recently discovered screwworm and monkey pox virus incursions in the United States. "Studies show veterinarians are among the most trusted people in the community. They are great feet on the street for hearing information," she said.

In the weeks to come, the state veterinarian's office is preparing a new "Animal Health Emergency Plan" that seeks the help of some two dozen volunteers, specifically, veterinarians or epidemiologists who can be part of a new "reserve" corps. "We plan on training these volunteers to identify disease so that when an emergency happens, they can be called in to assist in handling any widespread outbreak," she said.

Dr. Connell lives in Olympia with her husband, Matthew Porter.

Mark your calendars for these upcoming events...

- April 2-3** Annual Conference for Veterinarians and Veterinary Technicians—Pullman*
- April 3** Class of 1994 Reunion Reception and Dinner—Holiday Inn Express, Pullman
- April 3** Class of 1957 Reunion Reception and Dinner—Hilltop Restaurant, Pullman
- April 23** Annual Scholarship Awards Dessert—CUB Ballroom, Pullman
- April 20** Class of 1954 Reunion Reception and Dinner—Holiday Inn Express, Pullman
- April 21-22** Golden/Diamond Graduate Reunion 1944 and 1954—Pullman
- April 23** Class of 1954 Reunion Brunch—Holiday Inn Express, Pullman
- May 8** **WSU Commencement**—Pullman. Congratulations to our 2004 graduates! Contact Barb Robbins at (509) 335-1531 or brobbins@vetmed.wsu.edu.
- July 24-28** AVMA Annual Convention—Philadelphia. Alumni reception planned.
- Sept. 10** Dean's Reception—Eve of the WSU vs. Colorado football game, Seattle*
- Sept. 25** Horse Conference and Expo—Pullman. Open to the public.*
- Oct. 8-9** Class Reunions of 1964, 1966, 1974 and 1984—Pullman



"The Caring Call" in winter 2004

*For more information, contact Christina Rockett at (509) 335-7070, crockett@vetmed.wsu.edu. For all other events, contact Melanie Weller at (509) 335-4835, weller@vetmed.wsu.edu.



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