PIONEERS in ONE HEALTH
It is with a heavy heart that I dedicate this issue of Profiles to Dr. R.K. Anderson, one of the College of Veterinary Medicine’s pioneers in One Health. Born in 1922, R.K. passed away on October 18 at the age of 90. R.K. was active in veterinary medicine until a few weeks prior to his death. In August, he granted the college a nearly two-hour interview in which he detailed his part in developing the veterinary public health program at the University as well as his One Health contributions in brucellosis research and the human-animal bond. The Sunday before he died, R.K. spent 30 minutes conversing and reminiscing with another One Health pioneer, Dr. Stan Diesch.

Drs. Anderson and Diesch, along with Dr. Carl Osborne, Dr. Pat Redig, Dr. Dale Sorenson, and other One Health pioneers, established the foundation for our strong veterinary public health, comparative medicine, and ecosystem health programs, which are recognized nationally and internationally today. The concept of One Health has become one of utmost importance as emerging diseases threaten the food supply, wildlife populations, and the health of humans and domestic animals.

A changing environment with interconnected animal and human contact creates significant challenges. These challenges require integrated solutions and collaborative leadership as emerging zoonotic diseases, food- and water-borne diseases, and environmental change pose increasing threats. In addition, because animals and humans share the planet, they also share many mutually acquired noncontagious disease conditions. Through the study of comparative medicine, disease conditions are examined across species with the goal of gaining new understanding of underlying mechanisms that can lead to finding new tools for the diagnosis, treatment, and management of these shared conditions.

Thanks to the work of the One Health pioneers, the college is well-positioned to continue its leadership role in One Health. Their work also supports the mission of the University of Minnesota, which was commissioned as a land-grant university by the 1862 Morrill Act to build the future by serving the people in education, research, and public engagement. This year, as the University of Minnesota commemorates the 150th anniversary of the Morrill Act with the theme “For the Common Good,” it seems especially fitting that we recognize the work of our One Health pioneers.

In this issue of Profiles, you’ll read about the emergence of the veterinary public health program—which began as a joint effort between the College of Veterinary Medicine and the School of Public Health and has grown to encompass the breadth of One Health and also include the School of Dentistry, Medical School, School of Nursing, College of Pharmacy, and College of Food, Agricultural and Natural Resource Sciences. You’ll learn about the important early contributions to One Health made by some of the college’s pioneers, including R.K. Anderson. And you’ll read about the future of One Health at the college and the crucial role current One Health experts are playing in discovering and dealing with emerging zoonotic diseases throughout the state, region, country, and world.

I hope you enjoy reading this issue of Profiles as much as we enjoyed creating this wonderful look at our notable and illustrious history and future.

With warm regards,

Trevor Ames, DVM, MS, Diplomate ACVIM
Dean
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College of Veterinary Medicine One Health pioneers Drs. Stan Diesch, Dale Sorensen, Carl Osborne (with Chloe), and Pat Redig took time for a photo during a visit to the laboratory of Dr. Srirama Rao, associate dean for research. Photo by Michelle Mero Riedel
The University of Minnesota College of Veterinary Medicine (CVM) has long been at the forefront of discovering, diagnosing, monitoring, and eradicating diseases transmittable between humans and animals. The college’s decades-long dedication to veterinary public health—and its close association early on with the Medical School and School of Public Health—has positioned it as a global leader in One Health, a concept that recognizes that the health of humans, animals, and the environment are inextricably linked.

“We have been talking about One Health since 1947 or 1948,” said the late Dr. R.K. Anderson, professor emeritus and a pioneer in veterinary public health, in an August interview. “I would define One Health as encompassing the health of all human beings, animals, and plants. We are on this planet as one family. Veterinary medicine is just one part of One Health.”

A 1944 graduate of Colorado State University College of Veterinary Medicine, Anderson had four careers, all of which built on this dedication to One Health. His first career was as a dairy producer in Fort Collins, Colorado, where he worked closely with the veterinary faculty at Colorado State who used his cows as a study herd. During World War II, Anderson served in the U.S. Navy and trained in epidemiology and laboratory science. Upon returning to Colorado, he accepted a position as director of the veterinary public health program at Denver’s Department of Health and Hospitals (DHH). He left that position to obtain his master’s of public health from the University of Michigan in 1950, then returned to DHH during a citywide rabies outbreak as director of the animal control program and animal shelter.

In 1954, Dr. W. T. S. Thorp became dean of the CVM after serving as a veterinary director of the National Institutes of Health’s U.S. Public Health Service. He and Dr. Gaylord Anderson, the first dean of the University’s School of Public Health, developed a joint program in
veterinary public health. Thorp and Gaylord Anderson then recruited R.K. Anderson to become the first director of the veterinary public health program in the School of Public Health, a position he held until 1986. “They hired me to run the program for veterinarians in the veterinary school and veterinarians in the School of Public Health,” Anderson said. “I taught protection of the food supply, zoonotic diseases, and epidemiology.”

Anderson’s successor, Dr. Stan Diesch, another pioneer in One Health and professor emeritus, grew up on a diversified farm in southern Minnesota, where he gained an interest in public health due to incidences of brucellosis in cattle on his family’s farm and scarlet fever in his sister.

“We were quarantined, and I saw the interrelationship and input from veterinarians, public health professionals, and medical physicians,” says Diesch. A 1956 CVM graduate, Diesch joined a private practice in Freeport, Illinois, before purchasing a food animal practice in Winthrop, Iowa. During his seven years in private practice, Diesch helped diagnose leptospirosis in the wife of one of his farmer clients who had just delivered newborn pigs.

After receiving his master’s of public health from the University, Diesch, a graduate student of Anderson’s, entered academia in 1963 as an assistant professor at the University of Iowa College of Medicine in the Department of Preventive Medicine and Environmental Health (Institute of Agricultural Medicine). In 1966, he was hired as a faculty member in the University of Minnesota College of Veterinary Medicine’s Department of Microbiology and Public Health. He soon succeeded Anderson as head of the Division of Epidemiology, Food Hygiene, and Veterinary Public Health, a position he held until 1995.

**Early research and teaching accomplishments**

The work of Anderson, Diesch, and other early innovators laid the groundwork for modern-day research in population and comparative animal medicine at the college.

“In the 1950s, there were more than 5,000 cases a year of brucellosis in humans,” Anderson recalled. “It was considered a very important zoonosis.”

Anderson began his work in brucellosis in the lab of Dr. Martin Roepke, who developed the milk ring test, which enabled the U.S. Department of Agriculture (USDA) to test the milk, rather than blood, of dairy cows.

“Our major breakthrough was that we established new tests that could distinguish between vaccinal antibodies and antibodies due to infection,” Anderson said. “Our work allowed the USDA to differentiate between infected animals and those that had been vaccinated.” Anderson was also appointed to the National Brucellosis Technical Commission, a five-member commission consisting of two veterinarians, a cattle rancher, an economist, and a representative from the National Cattlemen’s Association.

Dr. Wesley Spink from the University Medical School, one of the world’s leading authorities on brucellosis, read about that study in *Science* and contacted Anderson because the Medical School had several hundred blood samples from prisoners at the state correctional facility in Stillwater who had been vaccinated for brucellosis. One of Spink’s residents worked with Anderson to see if vaccinal antibodies were also present in the prisoners’ blood samples. Their work resulted in a paper in the *New England Journal of Medicine* that established that humans also produce vaccinal antibodies. Anderson’s team subsequently developed the rivanol test, which became one of several supplemental tests to differentiate vaccinal antibodies from brucellosis infection. “The supplemental tests were fast and easy,” Anderson added.

Around the same time, the late Dr. Vic Perman, a 1956 CVM graduate, and Dr. Dale Sorensen, a 1946 graduate of Kansas State University College of Veterinary Medicine and a former CVM dean as well as...
a professor emeritus, were conducting separate research on bovine leukemia, a relatively common problem in cattle at the time. The U.S. government asked the college to determine the cause and pathogenesis of leukemia in cattle and how they might relate to the study of leukemia in humans. “After several years, we isolated the virus that caused bovine leukemia,” says Sorensen. “It had an impact on the thinking and philosophy of leukemia in humans.”

Sorensen also headed a study in the mid-1950s on congenital porphyria, a group of uncommon inherited diseases found in both humans and cattle. “We bought part of a cattle herd that had congenital porphyria and studied the cattle jointly with scientists from the Medical School,” says Sorensen. “A lot that we know about congenital porphyria in humans today is the result of a study initiated with this research.”

In the 1960s and ’70s, Diesch conducted groundbreaking research for the U.S. Environmental Protection Agency in conjunction with the University’s Agricultural Engineering department on the survival of leptospirosis and salmonellosis in the environment. “We determined survival times of the pathogenic organisms in livestock manure to determine how it affected humans at work and the environment,” Diesch notes.

The college’s veterinary public health pioneers also made vast strides in
teaching. “I was able to get agreement to shift Veterinary Epidemiology from the senior-year veterinary curriculum to freshman year, which was a very dramatic change,” says Diesch. “The change was made first in Minnesota but then adopted by most of the veterinary colleges and schools in the United States and Canada. It created population medicine for students early and exposed them to the One Health concept and to me and Dr. R.K. Anderson and our colleagues Drs. Jim Libby, Mike Pullen, and Ashley Robinson.”

R.A. “Ashley” Robinson spent 20 years at the college and contributed extensively to public health, specializing in clinical epidemiology and veterinary public health. Originally from New Zealand, Robinson obtained his master of public health and PhD degrees from the University of Minnesota. He trained dozens of epidemiology graduate students. Many of Robinson’s students, including CVM faculty members Dr. Jeff Bender, Dr. Srinand Sreevatsan, and Dr. Scott Wells, went on to pursue careers in veterinary epidemiology and public health.

Libby and Pullen were both pioneers in determining the role animal products played in causing disease in humans. Libby was an early (1968-1975) member of the veterinary public health team at the college. Before coming to the college, Libby worked with USDA in meat hygiene and food safety.

Pullen joined the college in 1976 in meat hygiene, food safety, and public health after working with USDA as a veterinary medical officer and epidemiologist in the federal meat and poultry inspection program. He obtained a master’s degree in preventive medicine and a master of science in food sciences from the University of California, Davis. He served on two National Academy of Sciences committees that culminated in reports on meat and poultry inspection. Pullen also loved to teach and brought deep practical knowledge and many stories to his teaching of public health and food safety. In addition to teaching at the college, Pullen taught public health and food safety at several other veterinary schools using a short-course format.

Another research project of Diesch’s that spanned 10 years resulted in the Minnesota Disease Reporting System, which is crucial in the detection and reporting of zoonotic diseases. “We did extensive work in conjunction with private veterinary practitioners, the Board of Animal Health, state veterinarians, and federal veterinarians,” says Diesch. “We completed a validation of that study, and it became the prototype of USDA’s national system in place today.”

Comparative medicine
Comparative medicine—improving human health through animal models—is another facet of One Health in which CVM pioneers have played an influential role in both human and veterinary medicine. An early innovator in comparative medicine, Dr. Carl Osborne, professor in Veterinary Clinical Sciences and a 1964 graduate of Purdue University College of Veterinary Medicine, began his career at CVM in 1964 as an intern.

Osborne’s revolutionary work in the dissolution of uroliths in dogs, cats, and humans began with funding provided by the Paralyzed Veterans of America. “At that time, paralyzed veterans had indwelling catheters, and they developed urinary tract infections that led to the formation of struvite stones,” says Osborne. “We first developed the model in dogs, but once you can dissolve stones in one species, it opens up the dissolution of stones in all species.”

Over the years, major funding for Osborne’s work shifted to pet food manufacturers, primarily Hill’s, manufacturer of Science Diet and Prescription Diet. “Veterinary medicine is light years ahead of human medicine in applying stone dissolution technology,” says Osborne. “This is no longer a surgical disease, not predominately. Stone
dissolution through diet is so effective that I would say if veterinarians do not know about using diet for cats with struvite stones, and they don’t use the technology, they are bordering on negligence and maybe malpractice.”

**The human-animal bond**

A newer facet of One Health, the human-animal bond, developed out of the work of One Health veterinarians Anderson, Diesch, Bill McCullock, and Joe Quigley, with physician Michael McCullock. The Delta Society, an organization dedicated to enlisting the help of therapy, service, and companion animals to improve human health, stemmed from their work. The team later founded the Center to study Human Animal Relationships and Environments (CENSHARE) through the CVM and the School of Public Health. Based in Minneapolis, CENSHARE conducts research and disseminates information on human-animal relationships and their effects on human well-being.

Anderson went on to study animal behavior and psychology at the University of California, Davis, and his work in animal control in Denver laid the groundwork for his later work.

“While in Denver, I soon learned it was not as efficient, humane, or safe to use force and punishment as it was to use humane methods and motivation,” Anderson said. “I developed the method of using food—in particular, hot dogs—because there were no dog treats in those days. The dogs responded well and were happy to please. We saved a lot of time and effort in handling, and we greatly reduced the bite rate. That gave me the impetus to think about humane handling of pets.”

One of Anderson’s late-career accomplishments was the invention of the Gentle Leader collar for dogs. He developed the collar with Ruth Foster, president of the National Association of Dog Obedience Instructors at the time.

“We decided we needed to develop something owners could use instead of choke chains, prong collars, and other cruel devices that had been developed to control dogs through choking and causing pain,” Anderson noted. “I had a background in cattle and horses, and we didn’t use choke chains on horses and cattle, but we did use halters. So I said, ‘Why can’t we use halters on dogs?’ I was jeered and laughed at again as I was in Denver when I wanted to use food to motivate dogs.” The University of Minnesota eventually patented the widely used collar, which the Smithsonian called one of the world’s 100 best inventions.

The early veterinary public health experts also began to engage with international organizations on One Health. One of those groups, the International Society of Animal Hygiene, had always held its meetings in Europe. In 1994, because of Diesch’s involvement, the first conference held outside of Europe took place in Minnesota. “Through our association
and affiliation with Mexico and South and Central America, we had really good participation, and subsequently the next conference was held in Mexico City,” notes Diesch, who also served as CVM director of international programs for 13 years.

Robinson also had a heavy focus on international issues, perhaps due to his upbringing in New Zealand and attending veterinary school in Australia. He taught epidemiology short courses to graduate students in Morocco and other African countries for several years.

**Building on a strong foundation**
The college’s early work in veterinary public health laid an indestructible foundation for the veterinary and postdoctorate students who followed and who continue to carry on the work of their predecessors.

“The University of Minnesota and the College of Veterinary Medicine are leaders in One Health,” says Dr. Laura Molgaard, associate dean for Academic and Student Affairs. “We have a very strong focus on public health, a required senior rotation in our curriculum, and the largest dual-degree DVM/MPH program in the country. We also have a preeminent veterinary public health faculty. The Center for Animal Health and Food Safety (CAHFS) and The Raptor Center are prime examples of that leadership.” The Raptor Center plays a prominent role in One Health as it relates to wildlife and ecosystem health. (See story, page 12.)

“CAHFS’s mission is to develop strategies to manage critical issues in animal health, food safety, and public health,” says Scott Wells, division head of public health and director of academic programs for CAHFS. “CAHFS has a number of educational programs that are One-Health focused. Our current teaching and training programs in veterinary public health are as strong as they are today because we are building on the structure established decades ago by pioneers Jim Libby, R.K. Anderson, Stan Diesch, R.A. Robinson, and Mike Pullen.”

CAHFS offers four levels of training and education: experiential training for working professionals and students; a dual degree comprised of a master’s in public health and doctor of veterinary medicine; individual courses for students and working professionals; and a two-year veterinary public health residency.

The college recently created the Veterinary Pioneers in Public Health Resident Education Fund, which recognizes the legacy handed down by retired faculty of the veterinary public health program. Through the fund, the college hopes to expand experiential educational opportunities for veterinary public health or affiliated residents. (See story, page 27.)

“The college has also long been a leader in comparative medicine and the human counterpart of various diseases, disorders, or conditions,” says Molgaard. “Veterinary medicine and veterinary biosciences provide ideal training to not only treat these conditions in animals but also to discover new knowledge that can provide breakthroughs for human as well as animal health.”

One of the college’s current comparative medicine projects involves a device that warns dog owners of impending seizures in their animal. The project is a collaborative effort with the Mayo Clinic, Pennsylvania State University College of Veterinary Medicine, and NeuroVista, the manufacturer of the implantable device.

“It is like predicting an earthquake or tornado,” says Dr. Ned Patterson, principal investigator on the project at the college. “It alerts you to protect yourself to prevent damage.” Currently the device is being tested on four dogs in Minnesota, three dogs in Pennsylvania, and 10 to 15 people in Australia, all suffering from severe seizures.

Regardless of the species being tested, a small electroencephalogram is implanted on the top of the brain while a small receiving device is placed under the skin in back of the shoulder. A signal device is then attached to the dog’s collar or carried by the person being monitored.
“When the light on the signal device is blue, it’s fair weather ahead. All is OK,” says Patterson. “A white light is similar to a tornado warning and alerts the dog’s owner to be on the lookout for seizures. A red light means a tornado has been spotted, or that a seizure is imminent.” Patterson notes that the preliminary results in humans and dogs are promising but that the device likely won’t work for everyone or every dog with severe seizures.

As more science becomes available, the One Health concept continues to evolve, and the college remains a leader in many areas, including animal behavior.

“Neurophysiology is similar across species,” says animal behaviorist Dr. Margaret Duxbury, a 1981 CVM graduate who studied under Anderson. “One of the gratifying things for me is helping owners realize when their animal’s behavior problem is driven by anxiety. In the old days, most behavior problems were attributed to weak owners. Owners are often relieved to learn that they don’t need to be more dominant or confrontational with their animals, and that serious problems are better addressed through behavior therapies that preserve the human-animal bond.”

Veterinarians also recognize that misunderstanding the needs of animals can lead to behavioral problems. “For instance, cats’ social structure does not lend itself to adding new cats to a household,” Duxbury notes. “If cats choose their own groups, they typically stay with their families, and
family groups are typically made up of females—mothers, daughters, and sisters. When cats are socially stressed, they often urine mark or fight with other cats in the household.” Recognizing the role humans play in stress-related illness in animals is a prerequisite to treating these conditions.

The college will also remain instrumental in One Health as the world undergoes rapid changes related to ecosystems (see “Wildlife and One Health,” page 12). In 2009, the CVM became part of a multidisciplinary team to implement a United States Agency for International Development (USAID) cooperative agreement with active projects in 14 countries in Africa and Asia. The project, called RESPOND, is one of four in the USAID Emerging Pandemic Threats program that are working together to pre-empt or combat the first stages of emerging zoonotic pandemics.

CAHFS will also play an expanded role in One Health as it relates to food safety through continued collaboration with stakeholders along the food supply chain. “As the global population continues to grow, there will be an increasing need to produce safe, wholesome, and nutritious food to feed that population,” says Wells. “Challenges in how to produce that food in a safe and sustainable way will also increase.”

Over the years, the faces of the veterinary public health experts and the diseases might have changed, but the premise remains the same. Humans and animals need a healthy environment to thrive, and due to the shared physiology of all animals, including humans, veterinary medicine and the college are positioned squarely at the intersection of One Health.

Human health goals of veterinary medicine
These human health goals of veterinary medicine were developed by a research group headed by the University of Minnesota School of Public Health in 1976 and involved major input from the CVM’s pioneers in veterinary public health:

- Zoonoses prevention
- Food protection
- Environmental hazard protection
- Comparative medical research
- Health education
- Administration
- Mental and emotional health
- Emergency medical services
- Human health through animal products

Animal behaviorist Dr. Margaret Duxbury, who studied under Dr. R. K. Anderson, now heads the University of Minnesota Veterinary Medical Center’s Animal Behavior Service. Photo by Sue Kirchoff

International visitors with the RESPOND project came to the College of Veterinary Medicine for a weeklong workshop in June. Photo by Sue Kirchoff
WILDLIFE
&
ONE HEALTH
This past summer, a new outbreak of West Nile virus, a mosquito-borne disease that affects birds, horses, and people, emerged—causing the death of 219 people in the United States as of late October. In the second-worst year on record for the disease, the total number of cases across the country grew to 4,725.

Since the introduction of West Nile virus into the United States, University of Minnesota veterinarians specializing in wildlife and ecosystem health have been instrumental in understanding and controlling emerging diseases transmitted between humans and animals. Both The Raptor Center (TRC) and the Ecosystem Health Initiative are leaders in One Health issues.

“We are not exactly sure how West Nile got to the United States, but it first showed up on the East Coast in 1999, and it was related to strains seen in Europe in the previous couple of years,” says Dr. Pat Redig, co-founder of TRC. The virus is thought to have originated in East Africa and spreads when a mosquito bites an infected bird and then stings a person.

Redig, who earned his DVM from the college in 1974 and his PhD in 1980, received support from the CVM’s veterinary public health pioneers when he and CVM faculty member Dr. Gary Duke founded TRC in 1974. In less than three decades, their work gained global recognition, positioning the college and TRC in leadership roles in combating the growing disease concerns emerging at the interface of wildlife, domestic animal, and human health.

“In the past, diseases tended to stay put, but with globalization, jet travel, and the vast movement of things around the world, the notion of One Health has evolved,” says Redig. “We have been moving things around the world for centuries on ships, but the quantities were smaller, time lines were longer, and the number of hosts were fewer. We have reached a critical mass in human population, and the ability to move goods and the organisms attached to them around the world has facilitated the advance and development of these pathogens.”

The germ theory of disease and the understanding of where pathogens originate as well as the realization that humans are connected to the environment laid the groundwork for One Health as it relates to wildlife and shared ecosystems.

“But the realization of One Health dawned on us in a meaningful way in the mid-1990s, when all of a sudden the global epidemics of influenza, SARS, and HIV occurred,” says Redig. SARS, or severe acute respiratory syndrome, was first identified in 2003, and provided a startling example of how fast disease can spread due to world travel.

**Lead poisoning**

Earlier problems, which also continue today, were more contained and dealt primarily with environmental toxins. One of Redig’s major focuses continues to be research and education related to lead poisoning in bald eagles and condors. When these large raptors ingest enough spent lead ammunition while foraging on...
Dr. Pat Redig examined a great horned owl admitted to The Raptor Center in August 2002. The owl was suspected of having West Nile virus, which was sweeping the country. Between August and October 2002, The Raptor Center treated 70 raptors suspected of having West Nile virus. A new epidemic emerged in the summer of 2012.

“Monitoring wildlife

The Raptor Center is also working to better understand the role of wild birds and poultry in the spread of Newcastle disease, a contagious viral disease affecting most species of birds. The disease is so virulent that many birds die without symptoms, and the death rate in unvaccinated poultry flocks can near 100 percent. In 1992, 20,000 double-crested cormorants died from the disease in Minnesota and the Dakotas. Newcastle disease was also found this past summer in wild birds in southern Minnesota. While cormorants are the most commonly affected wild bird, American white pelicans and gulls are also affected.

“We have spent several years looking at how health data on wildlife are collected,” says Dr. Julia Ponder, executive director of TRC and a 1994 graduate of Texas A&M University College of Veterinary Medicine. Ponder recently received a planning grant from the College of Veterinary Medicine. “The current system for disease reporting is strongest in humans, and then in domestic animals, and weakest for wildlife because of the challenges of sample acquisition, resources, and cost,” says Ponder.

Monitoring differs from wildlife surveillance, which is when veterinarians and other health professionals look for specific diseases in populations of species. Monitoring occurs when veterinarians routinely look for changes in wildlife health, including die-offs, increases in the number of sick animals showing specific symptoms, and novel or emerging diseases.

Avian influenza was the next epidemic to hit. “I became heavily involved in the

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“There is no national monitoring service,” says Ponder. “The new grant will bring together experts in wildlife health and data platforms to integrate various of types of information and develop a monitoring system that can detect changes, including emerging diseases.” TRC has long been a leader in the emerging area of wildlife monitoring, given the vast amount of data it collects on the raptors admitted to its clinic.

Expanding reach
The CVM’s and TRC’s role and leadership in One Health is rapidly expanding. In 2011, Ponder’s work took her south of the equator to the Galápagos Islands, known for their vast number of endemic species. She headed a pilot project that required her team to capture and keep endemic Galápagos hawks safe while scientists used rodenticides to eradicate invasive rodents, a main source of food for the hawks, on 10 small islands.

In November, she will travel to a larger island, Pinzón, where an estimated 34 genetically distinct Galápagos hawks as well as giant tortoises live. Disease is not an immediate issue with the hawks, but human introduction of invasive rodents has threatened the health of the island’s ecosystem.

In 2009, the CVM became part of a multidisciplinary team to implement a United States Agency for International Development (USAID) cooperative agreement with active projects in 14 countries in Africa and Asia. The project, called RESPOND, is one of four in the USAID Emerging Pandemic Threats program working together to pre-empt or combat the first stages of emerging zoonotic pandemics.

RESPOND’s major focus has been the development of networks of universities that are working together in Africa and Asia to build global capacity in cross-disciplinary approaches to zoonotic disease—using the One Health model. The University of Minnesota is a member of One Health Central Eastern Africa (OHCEA), a network of 14 schools of public health and veterinary medicine in six African nations: Uganda, Rwanda, Tanzania, Kenya, Democratic Republic of Congo, and Ethiopia.

“Over the next year, we will be working in all six countries strengthening and expanding experiential programs for students in zoonotic and infectious diseases,” says Dr. Katey Pelican, a 1997 CVM graduate and head of the college’s Ecosystem Health Initiative. Her charge is to build programs in ecosystem health across the three pillars of the college: research, service, and teaching. Recently two new faculty members, Dr. Dominic Travis and Dr. Megan Craft, joined the team.

One of the major efforts of the Ecosystem Health Initiative has been to focus on building integrated research, outreach, and training programs in One Health.
There is no other place in the country like the Twin Cities,” says Dr. Pat Redig, who founded The Raptor Center with Dr. Gary Duke in 1974. “We have a huge amount of diversity in habitat types and wildlife and are a commercial hub where agriculture, recreation, mining, and logging all meet. All of these activities require that people interact with the environment.” Photo by Michelle Mero Riedel

One Health

Unique advantages

“There is no other place in the country like the Twin Cities, where three major rivers, the Mississippi, Minnesota, and Saint Croix, converge, and where three biomes—the eastern deciduous forest, the prairie, and the boreal forest—meet,” says Redig. “It creates a huge amount of diversity in habitat types and wildlife. It’s also the cultural center of the state, as well as the commercial hub, and a place where agriculture, recreation, mining, and logging all meet. All of these activities require that people interact with the environment.”

The University of Minnesota, CVM, and TRC, one of the premier wildlife rehabilitation facilities in the world, make the Twin Cities the ideal place to train the next generation of ecosystem One Health specialists.

“One Health is the future of The Raptor Center,” says Ponder. “Our focus has always been the intersection of human, wildlife, and domestic animal health, but we will be focusing even more on it in the future. Raptors make wonderful sentinels; they are our lens and our particular area of expertise.” But the health of entire ecosystems must be studied, she says, because any negative change within an ecosystem has the potential to affect raptors, other wildlife, and humans.

“The big challenges we face are complex and require a cross-disciplinary approach,” says Pelican. “People need to understand how to bring together these disciplines. We need to train people so they will be prepared to solve these challenges. There is an enormous opportunity for this kind of work at the University of Minnesota, where the faculty is very collaborative. We are unique. We reach out to government agencies. We reach out to industry. We reach out to the world. The leadership of the veterinary school and veterinary medicine, in general, is very entrepreneurial. We bridge across health, agriculture, industry, and government in a way other professions do not.”

Demonstration sites will foster long-term relationships in areas where One Health challenges are emerging,” Pelican says. “Scientific research has identified certain hotspots as high risk for emerging diseases, and the Congo Basin is one of those hotspots. Diseases that have originated in this region include Ebola, Marburg virus, and AIDS.”

Before accepting a position at the University, Travis, a 1987 graduate of Michigan State College of Veterinary Medicine, worked for 10 years at the Lincoln Park Zoo, first as a wildlife epidemiologist and then as vice president of conservation and science, overseeing 50 research staff working on four continents. His continuing research focuses on the paradigm of ecosystem health and emerging infectious diseases, including the evolution of HIV from simian immunodeficiency virus (SIV) in apes and monkeys, and how rabies spreads in developing countries.

“One Health is a new and exciting area. There is a lot of energy at the college, nationally, and internationally, behind the ecosystem health concept,” says Travis. “I love the fact that the University is so collaborative and multi-disciplinary.”

The team’s teaching responsibilities are also multifaceted. Pelican teaches ecosystem health and applied epidemiology in the Public Health Institute (PHI), where she recently walked PHI students through the steps required to diagnose a major outbreak of yellow fever in Uganda. “We are also discussing the possibility of an ecosystem health specialty within the veterinary public health residency,” she says. Travis and Craft teach a class in health and biodiversity to pre-professional undergraduate students and at the PHI.

Demonstration sites, where interactions and conflict among humans, livestock, wildlife, and the environment are leading to challenges, including emerging diseases. In Africa, University faculty are working with OHCEA institutions to establish sites along the African Rift Valley, one of the most bio-diverse ecosystems in the world, with one of the fastest-growing and unstable human populations.

“This Demonstration sites will foster long-term relationships in areas where One Health challenges are emerging.” Pelican says. “Scientific research has identified certain hotspots as high risk for emerging diseases, and the Congo Basin is one of those hotspots. Diseases that have originated in this region include Ebola, Marburg virus, and AIDS.”

Photo by Michelle Mero Riedel
Minnesota’s veterinary medicine profession is dedicated to keeping Minnesota’s animals healthy. Veterinary professionals work to safeguard animal agriculture, ensure public health, protect natural resources, and care for pets, which are important family members. Earlier this year, a study by the University of Minnesota Extension and the Department of Applied Economics found the veterinary medicine industry also provides an economic boost, contributing $1.5 billion annually to Minnesota’s economy.

The study found that 14,500 people, including 2,001 veterinarians and 2,385 veterinary technicians, are employed as a result of the state’s veterinary medicine industry. These people collect $680 million in annual combined wages and salaries.

“Veterinarians are on the front lines, playing a major role in all animal-related industries, from serving as small animal veterinarians to identifying zoonotic diseases and managing outbreaks,” says Dr. Trevor Ames, dean. “Outside of care delivery, veterinary medicine professionals implement control and eradication strategies in animal populations, develop health management protocols and safe, effective treatments, and identify food-borne pathogens in animal-derived food products, assuring they are safe for consumers.”

According to the report, *Economic Contribution of the Veterinary Medicine Industry in Minnesota*, private veterinary practices and clinics located throughout the state account for the bulk of the veterinary workforce and the vast majority of economic activity, with $550 million in salaries and wages paid to 7,700 people, including 1,800 veterinarians. Only 10 of Minnesota’s 87 counties are not home to a private veterinary practice, and outstate veterinary practices specializing in food animal medicine contribute significantly to the total economic impact. However, their contribution is difficult to measure, because the value of their efforts often depends on a non-event.

Private industry—including medical device and pharmaceutical companies—employs 80 highly compensated veterinarians who generate an estimated $37 million in economic activity. State and federal agencies regulating and safeguarding human and animal health and safety, such as the Board of Animal Health and Minnesota Departments of Health, Agriculture, and Natural Resources, employ 97 veterinarians throughout the state. Together, they generate $24 million in economic activity.

Academic institutions contribute an estimated $230 million in economic output annually and are responsible for the employment of 930 individuals. These institutions include 13 private and public institutions of higher education in Minnesota, which train veterinary technicians, and one institution, the College of Veterinary Medicine, which trains veterinarians.

“We are very proud of the fact that most of the state’s veterinarians were trained at the University of Minnesota,” says Ames. “Because many of our graduates choose to practice here, we benefit the state’s economy and animal health by producing professionals who choose to live and conduct business here.”

The study was funded by the University of Minnesota College of Veterinary Medicine, the Minnesota Veterinary Medical Association, and the Minnesota Veterinary Medical Foundation.
Scholarships presented at annual reception
The college awarded 78 scholarships totaling more than $300,000—$100,000 more than in 2011—at the annual CVM scholarship reception at the Continuing Education and Conference Center on April 27. Dr. Bill Hartmann, executive director of the Minnesota Board of Animal Health, was the recipient of the 2012 College of Veterinary Medicine Outstanding Service Award. A strong supporter of the college and Veterinary Diagnostic Laboratory, Hartmann was recognized for his leadership in dealing with challenging disease problems such as bovine tuberculosis and chronic wasting disease. The student speaker was Andrew Kryzer, class of 2015, a participant in the Veterinary Food Animal Scholars Track (VetFAST) program.

Education Day salutes excellence in education
The college’s third annual Education Day, held at the Pomeroy Student-Alumni Learning Center on May 30, featured a poster session, seminars, and an awards ceremony. Award recipients included Dr. Robert Porter, who received the Pfizer Distinguished Teacher Award, the College of Veterinary Medicine’s most prestigious faculty teaching award. Dr. Jaime Modiano was honored with the Mark of Excellence Award, which is given to a faculty member who has generated new knowledge that has been shared with others by way of publication, presentations at scientific meetings, or other methods of dissemination. Veterinary Medical Center Technician Teaching Awards were presented to Elizabeth Olmstead, Small Animal Hospital, and Sonja Field, Large Animal Hospital. Also presented were departmental and graduate teaching awards, excellence in course coordination awards, and a continuing education award.

College awards degrees at annual commencement ceremony
The College of Veterinary Medicine awarded 88 DVM degrees, seven PhD degrees, and five MS degrees at the annual commencement ceremony at Ted Mann Concert Hall on May 12. Also awarded were 10 DVM/MPH degrees and one DVM/PhD degree. A welcome was presented by U.S. Senator Amy Klobuchar, and the commencement speaker was Dr. Catherine Woteki, undersecretary for the U.S. Department of Agriculture’s Research, Education, and Economics mission area and the department’s chief scientist. Dean Trevor Ames made opening and closing remarks, and the response for the class of 2012 was presented by Carrie Dubinsky Rodman. The degrees were conferred by Dean Johnson of the University of Minnesota Board of Regents; Dr. Sharon Hurley, president of the Minnesota Veterinary Medical Association, administered the veterinarian’s oath; and Dr. Jerry Torrison, president of the college’s Alumni and Friends Society, presented a congratulatory message.

Photos by Sue Kirchoff
Food Policy Research Center launched
Faculty and staff members of the College of Veterinary Medicine and three other University of Minnesota schools and colleges have joined forces to create an all-University Food Policy Research Center (FPRC). The effort is designed to provide policymakers and consumers a better, more complete, and holistic view of food policy options through the examination of scientific data and policy information.

Led by Dr. Will Hueston, professor and Global Initiative for Food Systems Leadership endowed chair, the FPRC is comprised of food policy subject matter experts from the College of Food, Agricultural and Natural Resource Sciences, College of Veterinary Medicine, Humphrey School of Public Affairs, and School of Public Health. These experts are capitalizing on their combined perspectives to analyze food and nutrition policies affecting farmers, food processors, and consumers while leveraging initiatives in health and sustainability.

“Analysts tend to look at food policy from one angle—the angle that represents their individual expertise—and it’s hard to see anything else,” says Hueston. “As integrated policy research teams, we’ll be working together from all sides to form a more holistic review of food and nutrition policy.” The FPRC is funded by the National Institute of Food and Agriculture.

New $8 million grant funds Upper Midwest Agricultural Safety and Health Center
The University of Minnesota will receive $1.6 million a year for the next five years to fund the Upper Midwest Agricultural Safety and Health Center (UMASH). One of nine U.S. Centers of Excellence in Agricultural Disease and Injury Research, Education, and Prevention funded by the National Institute for Occupational Safety and Health, UMASH is a collaboration of the University of Minnesota College of Veterinary Medicine, School of Public Health, National Farm Medicine Center of the Marshfield Clinic, and Minnesota Department of Health. A multidisciplinary One Health approach is central to the center’s mission, which aims to address human health in the context of animal, plant, and environmental health.

Mayo Clinic and partners to explore new ways to predict and control seizures
The Mayo Clinic and partners from the University of Minnesota College of Veterinary Medicine and College of Pharmacy, the University of Pennsylvania School of Veterinary Medicine, the Perelman School of Medicine at the University of Pennsylvania, and NeuroVista Corporation have been awarded a five-year, $7.5-million grant from the National Institute of Neurological Disorders and Stroke, a division of the National Institutes of Health, to study new ways to predict and control epileptic seizures in dogs and people.

The goal of the research is to use information gleaned from real-time electroencephalograms (EEG) to consistently detect impending seizures and develop methods of preventing these seizures through fast-acting drug therapies.

NeuroVista, a Seattle-based company, has developed an implantable device system that continuously collects and analyzes EEG data to detect impending seizures. The system uses an external patient-carried device with a very simple interface—three colored lights—to indicate the risk of an impending seizure. The NIH-funded research applies the NeuroVista technology to dogs with naturally occurring epilepsy, and extends the technology by using it to guide the administration of fast-acting drugs to prevent seizures. This work may translate to a similar solution for human patients. (See story and photos on page 9-10.)

University allocates additional funding to VDL
Last year, the University of Minnesota Board of Regents approved President Eric Kaler’s budget proposal for an additional $800,000 in recurring funds for the Veterinary Diagnostic Laboratory (VDL) for fiscal year 2012-13. This spring, President Kaler again demonstrated his strong commitment to the VDL by allocating an additional $500,000 in recurring funds to the VDL, bringing the total amount of recurring funds to $1.3 million annually.

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Genetic mutation affects locomotion in horses

Drs. Jim Mickelson, Molly McCue, and Jessica Petersen were among the authors of "Mutations in DMRT3 Affect Locomotion in Horses and Spinal Circuit Function in Mice," a paper published in *Nature*.

"The paper details the discovery of a naturally occurring genetic mutation in the domestic horse that likely alters the transmission of nerve signals in the spinal cord," McCue explains. "The result is that these horses no longer move their legs in the same pattern that is found in most domestic horses; they experience an altered pattern of locomotion or gait. As humans, we have capitalized on this mutation by breeding horses with altered locomotion because they are faster or more comfortable to ride." To the researchers' knowledge, horses are the only domestic species that humans have selected for altered locomotion.

"The other interesting finding is that it is shared by many horse breeds—even though the pattern of locomotion is different in each breed," McCue adds. "In other words, the mutation allows you to alter your pattern of locomotion, but does not mandate the footfall pattern. Thus, this mutation is permissive for altered gait, but other genetic modifiers likely control footfall pattern."

Antimicrobials alter intestinal bacteria composition in swine

Research by Dr. Richard Isaacson, professor in the Veterinary and Biomedical Sciences Department, and his team at the University of Minnesota and University of Illinois found that antimicrobial growth promoters administered to swine can alter the kind of bacteria present in the animals' intestinal tracts, resulting in an accelerated rate of growth and development in the animals. Antibiotics are routinely administered to swine to treat illness and to promote larger, leaner animals.

To arrive at their results, the researchers tracked the effects of the antimicrobial Tylosin. The effects were observed in the feces of commercial pigs on two farms in southwestern Minnesota. In young pigs receiving Tylosin, the intestinal bacterial composition changed and was similar to the composition naturally accredited to an older animal. These changes are linked to improved growth and stimulate an early maturation of the immune system.

"Bacterial composition drives the ability of animals to grow and thrive by contributing to digestion and metabolism," Isaacson says. "Because the bacteria in more mature animals break down growth-promoting components in food more efficiently, younger animals are able to achieve adult size and an adult-like metabolic rate more quickly." The results of the study were published September 3 in the journal *PNAS* (Proceedings of the National Academy of Sciences).

Study finds modern dog breeds are genetically disconnected from ancient ancestors

Interbreeding of dogs over thousands of years has made it extremely difficult to trace the ancient genetic roots of today’s pets, according to a new study by an international team of scientists that included Dr. Jaime Modiano, Perlman Professor of Animal Oncology and director of the Animal Cancer Care and Research program.

The scientists analyzed data of the genetic makeup of modern-day dogs, alongside an assessment of the global archaeological record of dog remains, and found that modern breeds genetically have little in common with their ancient ancestors. The findings were published in the scientific journal *Proceedings of the National Academy of Sciences of the United States of America*. In total, the researchers analyzed genetic data from 1,375 dogs representing 35 breeds.

Modiano, who studies genetic mechanisms of cancer, says that the research can tell us a great deal about heritable cancers in dogs, how and when the risks might have arisen, and what we can learn from studying modern breeds.
Stephanie Valberg inducted into Equine Research Hall of Fame

Dr. Stephanie Valberg, professor and director of the University of Minnesota Equine Center, has been inducted into the University of Kentucky Equine Research Hall of Fame, the highest honor for a lifetime of contributions to equine research. Valberg was the first woman to receive the honor.

Valberg has been a pioneer in unraveling the mystery of “tying up” and other muscle disorders in horses. Through her research, previously unknown muscle disorders were discovered, their genetic basis identified, and nutritional strategies developed to minimize muscle pain. Her work in equine muscle disease has revolutionized equine practice.

Valberg earned her degree in veterinary medicine at the Ontario Veterinary College and received her PhD from the Swedish University of Agricultural Sciences. After postdoctoral training in muscle disorders at the University of California, Davis, she completed a residency and became board certified in large animal internal medicine. In 1993, she joined the University of Minnesota College of Veterinary Medicine, where she became director of the University of Minnesota Equine Center in 2003.

Valberg also established the University’s Neuromuscular Diagnostic Laboratory, which receives muscle biopsy submissions from horses around the world. These muscle samples formed the foundation for identifying novel myopathies, including glycogen branching enzyme deficiency and polysaccharide storage myopathy. Working with Dr. Jim Mickelson, she identified the genetic basis for these diseases and developed commercially available genetic tests.

This work led her to insights into muscle diseases such as recurrent exertional rhabdomyolysis, immune-mediated myositis, and atypical myopathy. Valberg developed the first low-starch, high-fat feed for horses, which has become a staple in the treatment of exertional rhabdomyolysis or “tying up,” a condition characterized by skeletal muscle degeneration with light exercise. She was also a member of the team that sequenced the equine genome and identified the genetic basis for overo lethal white syndrome, a condition in which newborn foals die because of a nonfunctioning colon.

"My research has been fueled by a passion for horses, by the wisdom of colleagues such as Dr. Jim Mickelson, and by the hard work of terrific graduate students," Valberg says.

Dr. Stephanie Valberg

Portal created for referring vets

The Veterinary Medical Center (VMC) has created "My VMC," a new portal for referring veterinarians. My VMC gives referring vets direct access to their referred patients’ VMC medical records via a secure Web-based interface. It also provides the ability to review previously referred cases or follow cases currently at the VMC. Once a referring veterinarian is enrolled as a My VMC user and receives access information, the veterinarian is able to view their patients' demographic, signalment, and visit information; discharge letters containing details of case management verified by a senior VMC clinician; completed and verified VMC lab test results; and any prescriptions issued during the visit. Future access will include digital images, with notes from VMC radiologists; patient transfer notes between services reflecting the VMC’s team-based approach to patient care; and the ability for clients to access their pet’s VMC medical record. Referring veterinarians can get access or more information by contacting VMC Informatics at 612-625-3755 or going to https://myvmc.umn.edu.

Veterinary ophthalmologists donate service animal eye exams

The fifth annual American College of Veterinary Ophthalmologists/Merial National Service Dog Eye Exam Event brought together veterinary ophthalmologists and thousands of service animals for free eye exams in May. More than 200 board-certified veterinary ophthalmologists throughout the United States, Canada, and Puerto Rico—including Dr. Christine Lim of the University of Minnesota Veterinary Medical Center—provided free sight-saving eye exams to thousands of eligible service animals. To qualify, dogs had to be “active working animals” that were certified by a formal training program or organization or enrolled in a formal training program.
Awards and accolades

Dr. Tom Molitor, chair of the Veterinary Population Medicine Department, has been inducted into the Academic Health Center's Academy for Excellence in the Scholarship of Teaching and Learning. The Academy for Excellence recognizes Academic Health Center (AHC) faculty who have demonstrated excellence in the educational mission of the AHC. Faculty members inducted into the Academy have made exceptional scholarly contributions to advance learning in their schools and across academic programs at the University. They also advise the AHC on issues of competitiveness and research strategy.

Gene Hugoson, analyst with the Center for Animal Health and Food Safety, received the Siehl Prize in Agriculture, an annual prize awarded by the College of Food, Agricultural, and Natural Resource Sciences.

The University’s Global Programs and Strategy Alliance awarded two Global Spotlight international research seed grants to College of Veterinary Medicine faculty members. Dr. Julia Ponder, assistant clinical professor and executive director, The Raptor Center, and Dr. Dominic Travis, associate professor, received a grant for the project “Ecological Restoration in the Galápagos: the Galápagos Hawk on the Island of Pinzón.” Dr. Fernando Sampedro Parra, assistant professor, and Dr. Francisco Diez, professor, College of Food, Agricultural, and Natural Resource Sciences, received a grant for the project “Strengthening Food Safety in Latin America through Risk Analysis Approach.”

Dr. Kent Reed, professor in the Veterinary and Biomedical Sciences Department, was presented with the National Turkey Federation Research Award at the annual meeting of the Poultry Science Association in Athens, Georgia, in July. The Poultry Science Association is a global scientific society dedicated to the discovery and dissemination of knowledge generated by poultry research—knowledge that enhances human and animal health and well-being, and provides for the ethical, sustainable, and economical production of food.

Dr. Vicki Wilke received the Outstanding Faculty/P&A Award at the college's annual staff appreciation day event in July. Fifty-three longevity awards were presented to staff members who have worked at the college for 30, 25, 20, 15, 10, and 5 years.

Rod DeVriendt, human resources specialist, completed the University's President's Emerging Leaders program in June. The year-long program provides a leadership development opportunity for high-potential professional and administrative, civil service, and bargaining unit staff.

Dr. Doug Weiss, emeritus faculty member, will receive the 2012 American Society for Veterinary Clinical Pathology (ASVCP) Lifetime Achievement Award at the ASVCP's national meeting in Seattle in December.

Appointments

Dr. Jeff Bender, former director of the Center for Animal Health and Food Safety, has a new shared position with the College of Veterinary Medicine and School of Public Health. A nationally recognized expert in the infectious diseases shared between humans and animals, Bender is leading an effort to expand One Health educational opportunities at the University.

Dr. Frank Liu, coordinator, Veterinary Diagnostic Laboratory, has been appointed to a three-year term on the University of Minnesota’s China Center Advisory Council (CCAC). The CCAC advises the China Center executive director on policy issues, program development, and advancing the University’s engagement with China.
In memory—
Dr. Robert K. (R.K.) Anderson

One of the College of Veterinary Medicine’s most accomplished faculty members, Dr. Robert K. (R.K.) Anderson, died on October 18 at the age of 90.

Anderson remained active as an animal behaviorist and professor emeritus in veterinary public health until weeks before his death. As one of the College of Veterinary Medicine’s pioneers in One Health, he did an interview with Profiles writer Fran Howard at his home in August (see “Pioneers in One Health,” page 4). Weeks later, we learned that his health was failing, and he wasn’t well enough to take part in a photo shoot featuring One Health pioneers.

A bright and highly accomplished veterinarian, Anderson led a distinguished career that is immortalized through numerous awards and honors, two inventions that revolutionized dog training and handling, several nonprofit organizations, which he helped found, more than 75 scientific papers, and countless numbers of students whom he mentored.

Anderson was preceded in death by his wife, Winifred, in 2004. He is survived by three sons, Richard, Mark, and Eric, and very special friend Marlys Giesecke. The family has asked that memorial gifts be sent to the University of Minnesota Foundation in support of the Minnesota Veterinary Historical Museum Endowed Fund or the Veterinary Pioneers in Public Health Resident Education Fund. There will be a public celebration of his life on December 5 from 4:00-6:30 p.m. at the St. Paul Student Center.

dermatological drugs for feline and canine patients, covering oral, topical, and injectable medications suitable for cats and dogs. Vital information given for each drug includes indications, contraindications, mechanism of action, dosage, formulations, side effects, drug interactions, and monitoring.

Canine and Feline Gastroenterology, by Dr. Robert Washabau, professor of medicine and chair of the Veterinary Clinical Sciences Department, and Dr. Michael Day, professor of veterinary pathology at the University of Bristol School of Veterinary Sciences in England, was published by Elsevier. A comprehensive reference standard for the discipline, the book covers the biology, pathobiology, and diagnosis and treatment of diseases of the gastrointestinal, pancreatic, and hepatobiliary systems. An international team of experts led by Washabau and Day, including 85 authors from 17 countries, covers everything from minor problems such as adverse food reactions to debilitating inflammatory, infectious, metabolic, and neoplastic diseases of the digestive system.

Cultivating Change in the Academy: 50+ Stories from the Digital Frontlines at the University of Minnesota in 2012, an eBook published by the University of Minnesota, includes chapters by several College of Veterinary Medicine faculty members. Drs. Tina Clarkson and Tom Fletcher of the Veterinary and Biomedical Sciences Department were co-designers of the book, and also contributed articles. Other contributors include Drs. Al Beitz, Dave Brown, Kathy Fryxell, Patricia Goodman-Mamula, Rebecca Merica, Laura Molgaard, Rob Porter, Deb Wingert, and Martin Wolf.

New books

Canine and Feline Dermatology Drug Handbook, a book by Drs. Sandra Koch, assistant clinical professor, Sheila Torres, associate professor, and Donald Plumb, a former director of pharmacy services and hospital director at the Veterinary Medical Center, was published by Wiley-Blackwell. The comprehensive handbook summarizes...
Allerson and McCoy receive Vaughn Larson awards

Dr. Matt Allerson, a PhD candidate in the veterinary medicine graduate program, and Dr. Annette McCoy, a PhD candidate in the comparative and molecular biosciences graduate program, were the 2012 recipients of the Vaughn Larson Award, which recognizes superior scholastic ability, citizenship, and leadership.

Allerson’s research focuses on the transmission and control of influenza A viruses in pig populations. This year, he has taken on a new leadership role as the student representative for the veterinary medicine graduate program. He is also involved in teaching animal populations and swine disease courses to veterinary students, as well as leading students on swine farm visits for their coursework. He is advised by Dr. Montse Torremorell.

McCoy is an equine surgeon whose research explores the underlying genetic risk factors for osteochondrosis, a developmental disease of the cartilage that affects young horses. Advised by Drs. Molly McCue and Troy Trumble, she has taken on a leadership role as the student representative for the comparative and molecular biosciences graduate program.

Dr. Vaughn Larson earned his DVM and PhD at the University of Minnesota. The Vaughn Larson Awards honor his 20-plus years of service as a professor of large animal internal medicine at the College of Veterinary Medicine, where he conducted research in cancer and infectious diseases of horses and cattle.

Three students awarded doctoral dissertation fellowships

Veterinary medicine PhD students Dr. Matt Allerson and Dr. Fabio Vannucci and comparative and molecular biosciences PhD student John Schwartz were recipients of 2012-2013 University of Minnesota Doctoral Dissertation Fellowships.

“This outstanding recognition is truly an honor for these students, their advisors, and the college’s graduate programs,” says Dr. Mark Rutherford, associate dean of graduate programs.

Advised by Dr. Montse Torremorell, Allerson is interested in studying infectious diseases of swine, which have negative impacts on pig health, pork production, and food safety.

“Influenza virus has been an important cause of respiratory disease in pigs for many years,” Allerson says. “My research focuses on the transmission and control of influenza A viruses in pig populations. These viruses are common causes of respiratory disease in pigs and can be transmitted between other species. Specifically, I have assessed the infection dynamics of influenza virus in swine breeding herds and growing pig populations. I have also investigated the impact of immunity on influenza virus transmission and the importance of different transmission routes.”

Schwartz, who is advised by Dr. Michael Murtaugh, is also studying swine disease.

“My research involves characterizing and understanding the porcine antibody genetic loci and the diversity of the antibody repertoire,” Schwartz says. “In particular, I focus on the response to porcine reproductive and respiratory syndrome virus as a model to better understand how pigs respond to disease.”

The goal of Schwartz’s research is to identify specific antibody sequences that are associated with disease protection as a means of therapeutic intervention.

Advised by Dr. Connie Gebhart, Vannucci is studying a disease called proliferative enteropathy, which is caused by a bacterium (Lawsonia intracellularis).

“Allergens can elicit a variety of immune responses, including disease development and regulation. This is typical for a virus. This intricate bacterium only grows inside the cells, which is typical for a virus. Therefore, it is also important to study both the bacteriology and virology fields.”

Carlos Andres Diaz awarded Pijoan Fellowship

Dr. Carlos Andres Diaz, a PhD student in the veterinary medicine graduate program, is the 2012 recipient of the Carlos Pijoan Graduate Student Fellowship in Swine Medicine. Diaz received his DVM and MS degrees from the National University of Colombia, where he studied porcine circovirus type 2 in pigs, isolating the virus from different production units and analyzing risk factors associated with the disease. His current research is evaluating influenza virus genetic diversity in pig populations. His advisor is Dr. Montse Torremorell.

The Pijoan Fellowship was named in honor of the late Dr. Carlos Pijoan, a CVM faculty member who was internationally recognized for his work in swine respiratory disease and the influence of swine production systems on the dynamics of microorganisms such as porcine reproductive and respiratory syndrome virus.

Learn more

The College of Veterinary Medicine offers graduate programs in comparative and molecular biosciences and veterinary medicine, with specialty tracks in infectious disease, comparative medicine and pathology, population medicine, and surgery/radiology/anesthesiology. For more information, visit www.cvm.umn.edu/gradprog/.
New graduate students

The College of Veterinary Medicine’s graduate programs welcomed 10 new MS and PhD students in September.

Veterinary medicine graduate program

• Dr. Ana Dresch is doing research in dairy production medicine, reproductive physiology and management, herd health, and epidemiology. Advisors: Drs. Sandra Godden and Ricardo Chebel

• Dr. Vachira Hunprasit is conducting research in veterinary urology in the Urolith Center. Advisor: Dr. Jody Lulich

• Dr. Jisun Sun’s research interest is bacteriology, particularly in the context of food safety and public health.

• Dr. Dane Tatarniuk is a resident in large animal surgery as well as a new graduate student. His interests include lameness and orthopedic disorders, and his research will focus on the surgical management of conditions in the equine athlete. Advisor: Dr. Troy Trumble

• Jyotika Varshney is interested in infectious disease research, particularly the molecular mechanisms by which bacteria and viruses establish infection and microbe-host interactions.

• Dr. Lisa Wolff is focusing on disease prevalence in organic dairy herds and practices to minimize or control diseases in dairy cattle. She is also interested in improving the environmental impact of dairying and promoting dairy farming as a sustainable practice. Advisor: Dr. Riki Sorge.

Comparative and molecular biosciences graduate program

• Dr. Liang Guo’s research interests include microbiology and immunology, particularly the study of protozoa.

• Dr. Xi Guo is interested in the study of virus-host interaction, particularly in influenza viruses.

• Dr. Du Jing is interested in immunology, infection, and cancer.

Graduate student interview: Dr. Tiffany Wolf

Dr. Tiffany Wolf is a PhD candidate in the comparative and molecular biosciences graduate program. As a third-year student, she is concentrating almost exclusively on her research project. Wolf earned her DVM degree in 2002 from Louisiana State University. She worked for a couple years in an exotic pet practice and then completed a two-year fellowship at the Wilds in Ohio. She then accepted an associate veterinary position at the Minnesota Zoo and subsequently enrolled in the College of Veterinary Medicine’s PhD program.

Why did you choose the U of M for your graduate degree? I chose Minnesota mainly because of the University’s excellent track record in research, the collaboration between the College of Veterinary Medicine and the School of Public Health in graduate student training, and the Ecosystem Health program in the College of Veterinary Medicine. Being a part of the growth and development of the Ecosystem Health program is a very exciting part of my graduate career.

What is your PhD research project? I am studying disease transmission between humans and free-ranging great apes. As governments and conservationists work to preserve endangered great ape populations, practices such as habituation (or the conditioning of great apes to close encounters with human observers) for ecotourism and research have been utilized to sustain these populations. While habituation has been successful in reducing levels of poaching and habitat loss, this human contact has also lead to the transmission of diseases to which these animals have not otherwise been exposed. The aim of my research is to explore the risk of tuberculosis transmission from humans and identify strategies for the continued protection of great ape populations against transmission of this disease. I will carry out my research in Gombe National Park, Tanzania, using the resident chimpanzee population as a model for other habituated great ape populations.

How did you get interested in this kind of research? I have always been passionate about wildlife conservation and have a keen interest in epidemiology and infectious disease transmission. This is a wonderful collision of both interests in a research project that can have a big impact on both wildlife and human health.

What has been the most valuable part of your graduate education so far? My advisors, thesis committee, and director of graduate studies have provided me with much latitude and support to develop a program and research plan that aligns with my interests and meets my goals for attaining a solid foundation in scientific research. I am now at a point in my training where all of the skills I have learned over the past couple of years will be applied in my research. This rang true on my first trip to Gombe in May, when I met with partners to lay the groundwork for the field component of my research.

Once you complete your degree, what are your plans? I look forward to continuing the same type of research, where I can work to reduce the impact of infectious diseases on human, domestic animal, and wildlife populations by improving our understanding of disease transmission across populations.

Wolf is supported by a Morris Animal Foundation/Pfizer/CVM PhD fellowship specifically for PhD training of DVM scientists. Her research has been funded in part by a Ulysses S. Seal Conservation Award from the Minnesota Zoo, the University’s Consortium on Law and Values in Health, Environment, and the Life Sciences, and the U.S. Department of Agriculture. If you would like to support this program or any graduate training at the CVM, please contact Dr. Mark Rutherford, associate dean for graduate programs, at 612-625-4281 or ruthe003@umn.edu.
Bruce Coston publishes new book


Barbara Knust receives James H. Steele Veterinary Public Health Award

Dr. Barbara Knust, who was a veterinary public health resident and master of public health student at the college from 2007-2009, received the 2012 James H. Steele Veterinary Public Health Award from the Centers for Disease Control and Prevention (CDC) at the annual Epidemic Intelligence Service Conference in April. The annual award is given to current or recent Epidemic Intelligence Service officers for outstanding contributions to veterinary public health. Knust is a veterinary epidemiologist with the CDC Viral Special Pathogens branch and a lieutenant commander in the U.S. Public Health Service. She was honored for domestic and international work with zoonotic viruses and diseases, including hantavirus pulmonary syndrome and lymphocytic choriomeningitis, a rodent-borne viral infectious disease.

Russell Currier receives AVMA Public Service Award

Dr. Russell Currier, class of 1967, was honored with the American Veterinary Medical Association 2012 Public Service Award at the AVMA’s annual convention in San Diego. Currier is currently president of the American Veterinary Medical History Society.

In memory

Dr. Ralph Johnson, class of 1961, died September 9 at the Veterans Home in Luverne, Minnesota. While practicing in Fairmont and Waconia from the mid-1970s until his retirement in 2005, Johnson’s success with acupuncture left a legacy of solving various health puzzles. In addition to horses, Johnson treated family pets and cattle. He is survived by his wife, Bonnie, and son, Brad.

Dr. Leo Anthony Zehrer, class of 1953, died peacefully at his home in Brooten, Minnesota, on March 27. Known as “Doc” and “Tony,” Zehrer joined Dr. W.T. Williams in veterinary practice in Brooton in 1953. When Williams retired in 1961, Zehrer purchased the practice, which he ran until 1974, when he became a veterinarian for the Minnesota Board of Animal Health. He worked for the state for another 19 years, covering seven counties. Zehrer is survived by his wife, Vi, of Brooton, six daughters, and many other family members.

Dr. Mark Zens, class of 1985, passed away at his home on August 1 from complications of cardiovascular disease. Zens is best remembered for his work with wild animals. Starting as a volunteer in 1981, he later became the chief veterinarian and executive director of the Wildlife Rehabilitation Center (WRC) on the St. Paul campus of the University of Minnesota. He served as medical director until his retirement in 2005. A passionate advocate for the rehabilitation and release of injured and orphaned wildlife, Zens mentored numerous pre-vet and veterinary students during his tenure at WRC. He was preceded in death by his wife, Diane Snyder.

Get social

• Visit the College of Veterinary Medicine’s alumni Facebook page at www.facebook.com/CVMAlumniAndStudents.
• Connect with students and fellow alumni on LinkedIn at http://z.umn.edu/CVMlinkedin.

CVM alumni: We want to hear from you!

We’d like to know about your accomplishments! Have you started a new position, been promoted, or retired? Have you received an award or published a book?

Send us your news via the online form at z.umn.edu/cvmaluminews, e-mail Jennifer Scholl, alumni relations officer, at cvmalum@umn.edu, or send a note to Alumni Relations, College of Veterinary Medicine, 1365 Gortner Avenue, St. Paul, MN 55108.

Dr. Kristi Flynn, class of 2006, now practices at the University of Minnesota Veterinary Medical Center. Photo by Sue Kirchoff
The College of Veterinary Medicine has established a new fund to support experiential learning opportunities for veterinary public health residents. Named the Veterinary Pioneers in Public Health Resident Education Fund, the fund was established in recognition of Center for Animal Health and Food Safety (CAHFS) founding pioneers Drs. Robert K. Anderson, Stan Diesch, Jim Libby, Michael Pullen, and Ashley Robinson. These veterinary public health pioneers created early experiential learning opportunities for the next generation of veterinary public health experts, such as Dr. Jeff Bender, who is now a veterinary public health professor, and Dr. Scott Wells, who is now CAHFS’s director of academic programs. The college would like to continue this tradition.

Veterinary public health residents are early- to mid-career veterinarians interested in expanding their knowledge and skills for veterinary public health practice. The two-year program draws applicants from around the world and can accommodate up to seven residents at a time. Graduates have gone on to work in government, industry, and higher education, including the American Veterinary Medical Association, Centers for Disease Control and Prevention, Minnesota Board of Animal Health, Minnesota Department of Agriculture, University of Minnesota, and U.S. Department of Agriculture.

“While some of their learning takes place in traditional classroom settings, the most important component of the residency program is the experiential learning that occurs as residents are immersed in practical, hands-on projects in real work settings with government agencies, producer groups, intergovernmental organizations, and the private sector,” says Dr. Will Hueston, professor and endowed chair, Global Initiative for Food Systems Leadership. “The experiences require residents to design approaches, apply analytical skills, make decisions, and solve problems through active interaction with a wide range of individuals and organizations. Those who complete the residency program have a wealth of practical experience, polished interpersonal skills, extensive networks, and the ability to manage multiple projects and focus on priorities.”

CAHFS has a 10-year history of supporting veterinary public health residents through local and national experiential learning opportunities, but as the residency became more international in scope, the cost of the experiential opportunities increased. Linda Valeri, associate director, and other CAHFS leaders spearheaded the fund to support veterinary public health residents and affiliated residents from joint residency programs.

The new fund was announced at the CAHFS 10-year anniversary celebration on May 1. As of October, the fund totaled more than $16,000. CAHFS is now planning the application and award process and plans to present the first grant by June 2013. For more information or to make a gift to the fund, contact Bill Venne, chief development officer, at venne025@umn.edu or 612-625-8480.

In response to an outpouring of support for Bear, an Otter Tail, Minnesota, shelter dog needing surgery to correct his angular limb deformity, the Veterinary Medical Center (VMC) has established a new fund, the VMC Shelter Animal Angels Fund, to help provide specialty care for Minnesota’s shelter animals. A grateful client of the VMC has donated $50,000 to the fund, in addition to $50,000 to the VMC’s Companion Animal Fund.

“This is a wonderful reminder of what happens when talented, committed people do great things for a greater purpose,” says Dr. David Lee, VMC director. A committee has been formed to oversee the use of the new fund, and protocols consistent with the donors’ intent will be forthcoming. “This group will be tasked with making sure we have a sustainable strategy to help those shelter animals who need specialty care most for generations to come,” Lee says.

Xcel Energy chose TRC for Minnesota Day of Caring
Xcel Energy chose The Raptor Center (TRC) as one of 14 organizations to benefit from its Minnesota Day of Caring. On September 22, Xcel volunteers were at TRC laying down landscape fabric and pea gravel in The Raptor Center’s housing mews for education birds.
Upcoming Events

Celebration of R.K. Anderson’s Life
Wednesday, December 5, 4:00-6:30 p.m.
North Star Ballroom, St. Paul Student Center
Open to the public. Everyone is welcome.

American Association of Equine Practitioners Alumni Reception
Monday, December 3, 6 p.m.
Marriott Anaheim, Grand Ballroom Salon A
Anaheim, California

North American Veterinary Conference (NAVC) Alumni Reception
Sunday, January 20, 7 p.m.
Marriott, Atlanta/Boston Room
Orlando, Florida

Minnesota Veterinary Medical Association (MVMA) Alumni Reception
Thursday, February 7, time to be determined
Hilton Minneapolis
Minneapolis, Minnesota

Western States Conference Alumni Reception
Monday, February 18, 7:30-9:30 p.m.
Las Vegas, Nevada

Spring Scholarship Reception
Friday, April 12, 6 p.m.
Courtyard Room, Continuing Education and Conference Center

Mather Lecture Series
7:00-8:30 p.m. (complimentary light dinner at 6:30 p.m.)
215 Pomeroy Student-Alumni Learning Center

- December 6: Conquering Incontinence: New Options for Surgical Treatment, presented by Dr. Betty Kramek
- January 10: Managing Epilepsy: A Fresh Look at New and Not-so-New Medications, presented by Dr. Ned Patterson
- March 7: The Value of the Urinalysis in the Diagnosis and Management of Urinary and Non-urinary Disorders, presented by Dr. Jody Lulich
- April 4: Common Pitfalls in Veterinary Dermatology, presented by Dr. Sandra Koch
- May 2: Best Practices of Primary Care: Current Guidelines for Vaccine Protocols, presented by Drs. Kristi Flynn and Susan Lowum
- June 6: Tell Me Where it Hurts: Pain Assessment and Treatment for the Non-verbal Patient, presented by Drs. Maria Angeles Jimenez Lozano and Kerry Robinson

Mather Lectures are also available via simulcast.
For more information and to register, visit www.cvm.umn.edu/vetmedce/events/mather.

For the latest news and information about the College of Veterinary Medicine, visit www.cvm.umn.edu.
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