

EXCELLENCE AND LEADERSHIP IN RESEARCH, TEACHING AND SERVICE

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CONNAWAY SOCIETY WELCOMES CUPPS

University of Missouri System Curator Donald L. Cupps of Cassville addressed members of the College of Veterinary Medicine's Connaway Society during their annual meeting held April 9, immediately prior to the Gentle Doctor Benefit at the Holiday Inn Executive Center in Columbia. Cupps spoke of the University of Missouri's strength in collaborative research, which is possible through the breadth of academic resources available on the campus and the cooperation among the deans of the various schools and colleges.

"Everyone wants to be defined in some way," Cupps said. "I can't think of a better way of being defined than as a land-grant university. We're going to educate the kids of our state, we're going to conduct research and we're going to improve the quality of life for people throughout the state."

Cupps attended MU and received his bachelor's degree in agricultural economics in 1978 and his juris doctorate in 1981.

He discussed the importance of the College of Veterinary Medicine to Missouri's economy, particularly through the service it provides to the



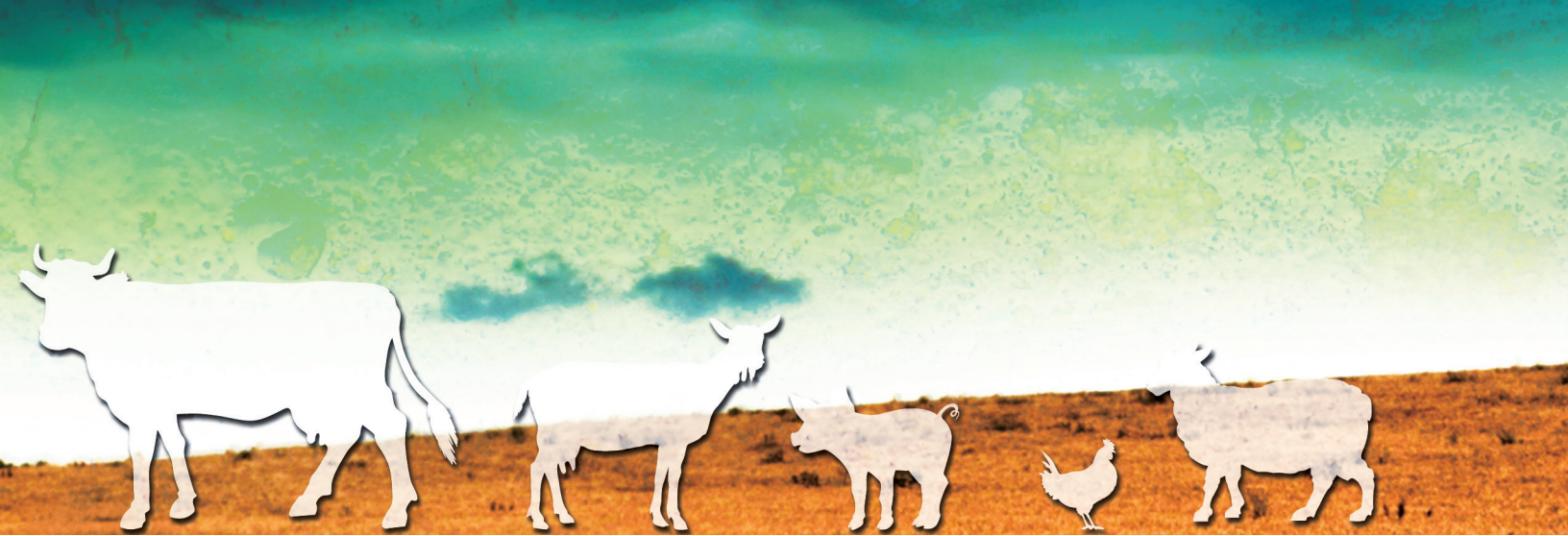
(Above) Members of the MU College of Veterinary Medicine Connaway Society listen to Curator Donald Cupps whose brother was a member of the CVM Class of 1980. (Left) CVM Dean Neil C. Olson discusses John Connaway's life before introducing Cupps.

crucial agricultural industry. He further addressed the state legislative budget process and asked Connaway Society members for their support, not just through gifts to the college, but also as advocates.

"We need outside support. I ask you to be ready to defend higher education.

Be ready to defend the UM System," he said.

The Connaway Society was established in an effort to continue the vision of John W. Connaway, who was the chairman of University of Missouri Veterinary Science Department from 1891 to 1931.



MU TO HOST ZOOONOSES RESEARCHERS

The University of Missouri College of Veterinary Medicine and Mizzou Advantage will bring several experts on zoonotic diseases to campus this May for an interdisciplinary research symposium. The symposium, “Infectious and Zoonotic Disease Emergence: Recognizing Challenges and Identifying Opportunities for Impactful One Health Research,” will take place May 23-24 at the Bond Life Sciences Center.

Zoonoses are infectious diseases of animals that can be transmitted to people. The symposium will focus on raising awareness about zoonoses through the exchange of scientific information about these diseases, and provide an opportunity for scientists to work with policymakers and stakeholders to identify priority areas for research. The symposium is open to clinicians, veterinarians, students, other health professionals and scientists interested in research and clinical topics on the growing risks of zoonotic diseases.

Featured speakers will include physicians, veterinarians, scientists and educators, who will provide insight into zoonotic disease emergence and opportunities to integrate human and animal health, particularly in settings where resources are limited. The keynote speakers are Tony L. Goldberg, PhD, DVM, MS; John A. Crump, MB



Tony Goldberg

ChB, MD, DTM&H, FRACP, FRCPA, FRCP; and M. Kariuki Njenga, BVM, MS, PhD.

Goldberg is a professor of epidemiology in the University of Wisconsin-Madison School of Veterinary Medicine, associate director for research at the university’s Global Health Institute and John D. MacArthur research chair. He received his bachelor’s degree from Amherst College, his doctorate from Harvard University, and doctor of veterinary medicine and master of science from the University of Illinois. He maintains a large research program funded by grants from the U.S. National Institutes of Health, the U.S. National Science Foundation, Sea Grant, the Bill and Melinda Gates Foundation, and other governmental and non-governmental agencies.



John Crump

His research focuses on the ecology, epidemiology and evolution of infectious disease, combining observational and experimental studies to understand how pathogens in dynamic ecosystems are transmitted among hosts, across complex landscapes, and over time. He is involved in a number of projects around the world that use traditional and molecular epidemiological methods to track the movement and evolution of microbes. Goldberg leads long-term studies of emerging zoonoses in African primates, arbovirus ecology in the United States, emerging viruses of aquatic and marine fishes, and microbial communities in humans and animals. His goal is to discover generalized mechanisms that govern

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Symposium continued

pathogen transmission, evolution and emergence, and to improve the health and well-being of animals and humans while helping to conserve the rapidly changing ecosystems that they share.

Crump is the McKinlay professor of global health and co-director of the Centre for International Health, at the University of Otago in Dunedin, New Zealand. He also serves as an adjunct professor of medicine, pathology and global health at Duke University, and a guest researcher with the U.S. Centers for Disease Control and Prevention. He graduated from the University of Otago School of Medicine in 1993 and trained as an internist in infectious diseases and a pathologist in medical microbiology at Christchurch Hospital, New Zealand; the Royal Free Hospital, London; the Canberra Hospital, Australia; Duke University Medical Center; and with the U.S. Centers for Disease Control and Prevention. He is a Fellow of the Royal Australasian College of Physicians, the Royal College of Pathologists of Australasia, and the Royal College of Physicians of the United Kingdom, and a diplomate of the London School of Hygiene and Tropical Medicine.

His main interests are in the prevention, diagnosis and treatment of infectious diseases in developing countries, with particular focus on febrile illness, invasive bacterial diseases especially the salmonellosis, bacterial zoonoses, HIV, tuberculosis and enteric infections.



M. Kariuki Njenga

Njenga coordinated the One Health Program of the Global Disease Detection Program for the U.S. Centers for Disease Control and Prevention in Kenya. He is a virologist and head of the One Health Program at the Kenya Medical Research Institute, and is a professor in the Paul G. Allen School for Global Animal Health at Washington State University. He initiated studies to determine etiologies of acute febrile illness in a remote region of Kenya that identified a new strain of rickettsia, and documented high prevalence in humans of another rickettsial pathogen not previously reported in East Africa. His primary responsibilities include enhancing collaboration between human and animal health in Kenya, and enhancing the capacity for disease surveillance and outbreak management at the Ministry of Livestock Development in Kenya.

Recognitions and Honors

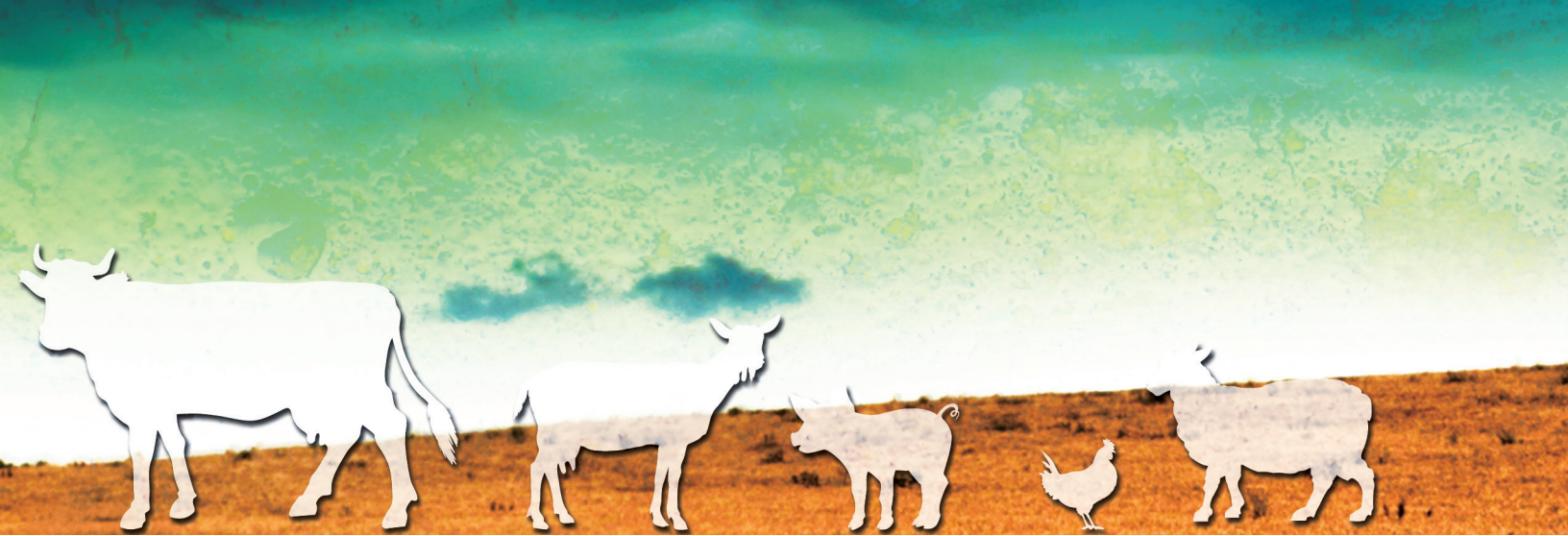


Kenton Morgan

The American Association of Equine Practitioners (AAEP) honored Kenton Morgan, DVM, a 1983 graduate of the University of Missouri College of Veterinary Medicine, with its 2015 President's Award. The award was presented during the organization's convention held Dec. 7-8 in Las Vegas.

Morgan is an equine veterinary specialist with Zoetis in Kansas City, Missouri. He recently concluded a three-year term on the AAEP board of directors.

Morgan joined the AAEP in 1985. He has served as a member of the Stem Cell and the External Parasite and Vector Control task forces. He was also the chair of the Biological and Therapeutic Agents Committee and a member of the Pediatrics and the Leadership Development committees.



Recognitions and Honors



Dickson Varner

Dickson Varner, DVM, MS, who earned a bachelor's degree at the University of Missouri in 1976 and doctor of veterinary medicine from the MU CVM in 1978, has been named the recipient of the David E. Bartlett Lifetime Achievement Award from the Society for Theriogenology and the American College of Theriogenologists.

Varner is a professor and Pin Oak Stud Chair of Stallion Reproductive Studies in the Department of Large Animal Clinical Sciences at the College of Veterinary Medicine and Biomedical Sciences at Texas A&M University in College Station. The award was established in 1971 and honors excellence in theriogenology, or animal reproduction. It is presented to one person annually.

MU Veterinary Oncologists Part of Osteosarcoma Study

The Veterinary Health Center at the University of Missouri College of Veterinary Medicine is joining forces with 15 other veterinary programs across North America and the National Cancer Institute to improve the odds for dogs diagnosed with osteosarcoma, the most common form of bone cancer in dogs. The VHC is part of the Comparative Oncology Trials Consortium, and the current clinical trial is sponsored by the Morris Animal Foundation.

"Currently we are stuck at an average survival time of one year in dogs with osteosarcoma that are treated with surgery and chemotherapy," said Brian K. Flesner, DVM, an assistant professor of veterinary oncology who is serving as the study's principal investigator at the VHC. "Many different chemotherapy drugs have been used, with no real advancement past one year of survival."

Osteosarcoma is most often diagnosed in large breed dogs, such as the Rottweiler, Great Dane, golden retriever, Doberman and St. Bernard.

The study will involve a total of 500 dogs and is expected to last between one and three years. Flesner said he anticipates enrolling 20 to 40 dogs at the VHC.

All participants will receive surgical removal of their tumors and standard-of-care chemotherapy at the VHC.



Brian Flesner

Once chemotherapy is completed, dogs may receive an investigational agent, rapamycin, which is an immunosuppressant that has shown anticancer activity. The study is to determine if the rapamycin improves survival rates. To be eligible to participate in the study, dogs must have a confirmed osteosarcoma diagnosis and have had no prior treatment for the disease. Clients will receive \$1,000 to offset the cost of surgery, and chemotherapy will be provided at no cost.

"The really neat thing with this current trial is that 16 vet schools across the nation are teaming up to treat animals in a standardized fashion so we can glean the most evidence from this trial," Flesner said. "It's a rare event and one we are very excited about."



MU Researchers Investigate Sleep Apnea and Hypertension Connection

Three MU College of Veterinary Medicine Biomedical Sciences researchers are taking a “team science” approach to learn how obstructive sleep apnea leads to hypertension and whether that response can be mitigated through medical intervention. Eileen Hassler, PhD, and Cheryl Heesch, PhD, professors in the Department of Biomedical Sciences, and David Kline, PhD, an associate professor in the department, are partnering on a study funded by the Heart, Lung and Blood Institute within the National Institutes of Health.

“This multi-investigator grant is a unique program from the NIH to promote collaborations among independent investigators,” explained Hassler. “This differs from many other collaborative grant programs in that each individual is recognized by both NIH and the university as a principal investigator who has responsibility and authority for the grant.”

Hassler and Heesch both focus on integrative control of cardiorespiratory functions. In addition, Hassler’s lab is involved in extracellular recordings of single neurons in the brain; and Heesch uses laser capture microscopy to isolate particu-



Eileen Hassler

lar cell types in the brain for further analysis of gene expression. The role of Kline’s lab is to provide detailed evaluation of neuron-to-neuron communications in isolated brain tissue.

The NIH recently awarded a competitive renewal of the grant, which has been funded since 2009. The renewal, for \$2,824,843, will underwrite the project from January 2016 through December 2019.

The brain normally adjusts to hypoxia, or low oxygen levels, by activation of a reflex called the arterial chemoreflex. This normal response is why people breathe harder when traveling to high altitudes, which helps increase oxygen available to



Cheryl Heesch

the tissues of the body. However, overactivity of the chemoreflex is associated with pathological conditions such as heart failure and hypertension. For example, individuals with obstructive sleep apnea become hypertensive.

“As a person experiences more hypoxia, the brain changes how the body responds,” Heesch said. “With long-term hypoxic challenges we often end up with pathological changes.”

Using rat models, the researchers have identified some of the regions in the brain and the neural pathways connecting them that are responsible for the maladaptations

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Hypertension, continued

in response to hypoxia. Those regions include two areas of the brain stem, the nucleus tractus solitarius (nTS) and the rostral ventrolateral medulla (RVLM), and one area of the forebrain, the paraventricular nucleus of the hypothalamus (PVN). The nTS is the region of the brain that receives sensory information from the body, including information from chemoreceptors on blood oxygen levels. This information is relayed to the RVLM, which is a major brain region for control of sympathetic nervous system activity and breathing. The PVN brain region also receives information from the nTS and is thought to contribute to the changes in cardiorespiratory function that are seen in disease.

Their research so far has led these investigators to conclude that the PVN plays a larger role than previously believed in how the body normally responds to low oxygen. The next phase of the study will focus on the role of connections to and from the PVN during both brief (normal physiology) and longer term (pathophysiology) exposure to hypoxia.

Identifying CNS transmitters and receptors that are involved in these processes, could lead to potential therapies for treating diseases such as obstructive sleep apnea.



David Kline

Alumnus Paul Nicoletti Passes Away

MU College of Veterinary Medicine alumnus Paul Nicoletti, DVM '56, of Gainesville, Florida, passed away Jan. 31, 2016. Nicoletti was born in 1932 in Goodman, Missouri, and grew up on a small dairy farm. After graduating from the CVM, he earned a master's degree in 1962 from the University of Wisconsin, where he wrote his thesis on brucellosis.

From 1962 to 1968, Nicoletti worked as a U.S. Department of Agriculture regional epidemiologist in Albany, New York. From 1968 to 1972, he served in Iran as an epizootiologist for the United Nations' Food and Agriculture Organization. He then returned to the United States and to his work as a regional epidemiologist with the USDA. In 1975 he was transferred to Gainesville.

In 1978, Nicoletti joined the faculty at the University of Florida's College of Veterinary Medicine. He was a member of the American Association of Bovine Practitioners, the Florida Cattlemen's Association and the American Association of Food Hygiene Veterinarians. He was a past president of the American Veterinary Medical Association, the American College of Veterinary Preventive Medicine, the Florida Veterinary Medical Association, the Alachua County Veterinary Medical Association and Animal Disease Research Workers in the Southern States.

Nicoletti was an internationally recognized authority on bovine brucellosis, and his efforts led to the eventual eradication of the disease in Florida. Brucellosis is a bacterial disease that can affect humans as well as animals. Over the course of his long and distinguished career, Nicoletti received numerous awards and honors. He retired from the University of Florida in 2003.

He and his wife, Earlene, established the Paul and Earlene Nicoletti Scholarship in Veterinary Medicine at MU.

He was preceded in death by his wife in 2011 and daughter Diana Nicoletti. He is survived by daughters Nancy Leader of Hattiesburg, Mississippi, and Julie Nicoletti of Louisville, Colorado; his sister, Ruthann Eads of Grove, Oklahoma; and four grandchildren.



ADVANCED DISEASE ILLUSTRATES NEED FOR PREVENTIVE DENTAL CARE

Lois Hoover of Kansas City has rescued many dogs of a variety of breeds, but Italian greyhounds hold a special place in her heart.

“They’re tiny and fragile, but so strong in spirit,” she said. Hoover is a foster parent for the Missouri/Kansas chapter of the Italian Greyhound Rescue Foundation. “Spirited” is how Hoover describes “Lady Blue,” the Italian greyhound she began fostering in January. Lady Blue and her sister were surrendered to the rescue organization by someone who could no longer care for them. Hoover took in Lady Blue while her sister was sent to another foster home in St. Louis. The foster families will care for the dogs until as many medical needs as possible have been met. For Lady Blue, who is believed to be about 9 years old, that has meant extensive veterinary intervention to correct severe dental problems.

Hoover first took Lady Blue to her veterinarian in Kansas City, who referred the dog to the University of Missouri Veterinary Health Center (VHC) Small Animal Hospital. Eva Ulery, DVM, clinical instructor of community practice, determined the dog had end-stage periodontal disease.

“Lady Blue’s lower jaw was broken because of chronic infection that had eat-



Eva Ulery, DVM, clinical instructor, works with fourth-year veterinary students Brett Sexton and Brittany Hofman to take radiographs of Lady Blue’s jaw.

en away gingiva and jaw bone,” Ulery said. “Our goal was to eradicate the infection and pain.”

Unfortunately, there was not enough healthy gingiva and bone left to repair her mandible. Ulery removed the unhealthy bone, gingiva and teeth, and sutured the remaining tissue to create a functional lower jaw. Now, Lady Blue is infection-free and eating comfortably.

“Dogs usually recover well from oral surgery,” Ulery said. “Lady Blue has adapted nicely and has a better quality of life. However, we as pet owners should take the time to educate ourselves on proper preventive dental care for our pets.”

February was National Pet Dental Health Month, an annual effort to

raise awareness of the importance of oral health care for dogs and cats. VHC Community Practice veterinarians suggested the following:

- Watch for symptoms of dental disease. Pets often show no symptoms of periodontal disease. Signs of dental problems can include reluctance to chew, especially on hard toys or food, using only one side of the mouth, excessive drooling and bad breath. If pets have an odor to their breath, bacteria could be growing underneath the gum surface.
- Brush pets’ teeth. “Removing soft food before it hardens into plaque and tartar is key,” Ulery said. After 48 to 72 hours plaque turns into calculus, which harbors bacteria and cannot be brushed off the teeth. “Always use toothpaste that’s approved for dogs or cats. Never use human toothpaste as it’s harmful to pets.”
- Have pets’ teeth cleaned regularly by a veterinarian. Ask your veterinarian for a complete oral exam and radiographs.
- Consider products designed to help prevent dental disease, such as food, water additives and specially designed chew toys.



CVM Welcomes New Senior Director for Advancement

Veteran fundraiser Janie Ausburn Harmon has joined the MU College of Veterinary Medicine as the senior director for Advancement. Harmon has been with Mizzou for 27 years. She started at the university in a campuswide public relations position helping to promote the university's sesquicentennial. Harmon's first position in Advancement was with the College of Agriculture, Food and Natural Resources where she helped secure funding for the Anheuser-Busch Natural Resources Building. She spent 17 years at the School of Law and also with the Trulaske College of Business and Harry S Truman School of Public Affairs before joining the College of Veterinary Medicine.

"As I looked around the university, there are programs that have always been highly respected; the CVM is one of them," Harmon said of her decision to join the College of Veterinary Medicine.

Harmon is a Columbia native who grew up on a farm where her family raised sheep, cattle and chickens. She said her childhood, including an involvement with 4-H, instilled a love for agriculture and animals. She is a graduate of Hickman High School and Stephens College.



Janie Harmon

She said she is looking forward to leading the college's fundraising efforts during the recently launched campaign. "The College of Veterinary Medicine is poised to make significant contributions to the success of Mizzou: Our Time to Lead, and I look forward to building on the excellent work that Dean Olson and others have done toward fundraising goals," Harmon said.

She said her top priority will be to develop relationships with the faculty and get better acquainted with their work. She will also focus on support for a new academic building, specialty programs, the Dean's Fund for Excellence, endowments for scholarships and faculty positions, and a grateful clients program for the Veterinary Health Center.

MU Veterinarian Offers Insight Into Canine Influenza

Recent reports of an increase in canine influenza virus (CIV) diagnoses have pet owners worried and alarmed. Richard Meadows, Curators' Distinguished Teaching Professor of Small Animal Community Practice Medicine at the University of Missouri, says that while pet owners should be cautious, print and broadcast media reports showing increases in canine flu may be exaggerated.

He suggests that pet owners should consider the risk factors associated with canine flu and consult with their pets' veterinarians before making a determination about whether to have their pets vaccinated.

CIV causes respiratory infection in dogs; however, unlike human influenza, CIV is not "seasonal" flu and infections can occur year-round. The most common clinical sign is a cough that can persist for 10 to 21 days. Affected dogs may have a soft, moist cough or a dry cough that can often be mistaken as Bordetella (the most common cause of kennel cough).

Symptoms also include discharges from the nose and/or eyes, sneezing and decreased appetite. A small percentage of dogs are more severely affected with pneumonia, a high-grade fever (104°F to 106°F) and increased respiratory rate.

Continued on page 9



Influenza, continued

“While it is a diagnosis for which responsible pet owners should be aware, recent American Veterinary Medical Association (AVMA) reports and suggestions indicate that pet owners should consult with their veterinarian to determine whether their dogs’ lifestyle includes risks for exposure to the canine influenza virus,” Meadows said.

According to Meadows, the following factors could help determine if a pet is at risk for canine influenza:

- Dogs with chronic respiratory problems
- Brachiocephalic (short-nosed) breeds such as bulldogs and pugs
- Dogs that are fairly inactive
- Dogs that are immune-compromised
- Dogs that are frequently in contact with other dogs — for example, at boarding or day care facilities, dog parks or grooming salons

The first recognized outbreak of canine influenza in the world was the H3N8 strain in racing greyhounds at a track in Florida in 2004. A vaccine for this strain became available in 2009. Another strain, H3N2, affecting dogs (and rarely cats) was detected overseas



Richard Meadows

as early as 2006, but an outbreak of this strain did not occur in the U.S. until 2015, with one case identified in Missouri. To date, no evidence of transmission from dogs to people has been detected. The first commercial vaccine for the disease was approved in November 2015.

“The vaccine may prevent dogs from getting the virus altogether, but much like in people, sometimes it only lessens the effects of the disease,” Meadows said.

Richard Meadows suggests that pet owners should conduct research, consider the risk factors associated with canine flu and consult with their pets’ veterinarians before making a determination about whether to have their pets vaccinated.

The normal protocol for treatment of the disease is a series of medications including antibiotics, anti-inflammatories and keeping the dog hydrated.

“Because symptoms are similar to a host of other ailments in dogs, such as Bordetella, the best way to diagnose canine flu is through bloodwork,” Meadows said. “To put it in perspective, so far, one dog has tested positive in Missouri; 115 other dogs have tested negative — while not an epidemic or a pandemic by any means, pet owners should still be aware of the risk factors and act appropriately.”

For more information, see the AVMA’s Frequently Asked Questions: www.avma.org/public/PetCare/Pages/CanineInfluenza.aspx.

REAR HITCH

GENTLE DOCTOR BENEFIT GALLERY

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Crystal Climer (left) and Sonja Perry, members of the Class of 2019, were the recipients of this year's Gentle Doctor Benefit scholarships.



The success of the benefit depends upon student volunteers.



Second-year veterinary student Emily Strubinger was the winner of the jewelry raffle for a 14 karat white gold diamond halo pendant with a Tahitian pearl.



MU mascot Truman helped spur the bidding during the live auction.



CVM Dean Neil C. Olson was among the bidders for the mystery box during the silent auction.



The Mo'tet of the Mizzou Jazz Studies program entertained during the benefit.



CVM Assistant Teaching Professor Shannon Reed and Professor John Dodam emceed the benefit, and alumnus Densil Allen provided auctioneering services.