

Profiles

10 years of
collaborative leadership

Center for Animal Health Food & Safety



- New Dairy Center of Excellence
- Points of Pride Research Day
- Welcoming President and Mrs. Kaler
- Donor honor roll
- Veterinary research aids human trials



UNIVERSITY OF MINNESOTA

College of Veterinary Medicine

Driven to DiscoverSM

After previewing this issue of *Profiles* and reflecting on the changes that have occurred locally, nationally, and internationally since the Center for Animal Health and Food Safety (CAHFS) was formed at the College of Veterinary Medicine 10 years ago, I am impressed with the foresight and wisdom of the University and Minnesota Legislature in funding an organization that has so ably responded to the emerging issues of the last decade.

Shortly after CAHFS was formed, the Sept. 11 attacks occurred. The anthrax-contaminated letters followed shortly thereafter. Both greatly heightened the national concern over bioterrorism. Since that time, we've experienced one animal health crisis after another: west Nile virus in Minnesota (2002); chronic wasting disease in farmed elk in Minnesota (2002); monkeypox across the Midwest (2003); the first case of mad cow disease in the United States (2003); H5N1 global outbreaks in southeast Asia (2004); and bovine tuberculosis in cattle and deer in Minnesota (2005). Foodborne outbreaks captured headlines throughout CAHFS's first decade as well: *E. coli* in spinach and lettuce, *salmonella* in salsa and peanut butter, and listeria in deli meats and cantaloupes. CAHFS and its trainees responded to these events through just-in-time risk communications and partnering on investigations and control strategies.

During this same period, the American Veterinary Medical Association held a summit on the future of the profession in Washington D.C., conducted an extensive visioning process that resulted in the *Foresight Report*, and completed a shared plan for implementing a new veterinary curriculum, which was done in collaboration with state licensing boards and veterinary medical examiners. Leaders in the profession recognized the need for enhanced training in veterinary public health, including food safety and ecosystem health. In fact, these reports could be thought of as a challenge to create a new breed of "one health" veterinary professional.

In this issue of *Profiles*, you will learn about the growth of CAHFS, its life-changing initiatives, the services and programs it offers, and how it was built on partnerships. I think you will agree that CAHFS has had amazing success in addressing the challenges of the times and those set forth by the profession. Through CAHFS's partnering with state, national, and international government organizations, universities, and private entities, our students literally receive a world-class education. The hands-on, real-world opportunities that CAHFS provides also help leverage our resources in these challenging economic times—and this isn't going unnoticed.

In addition to our successes associated with CAHFS, the College recently received a \$700,000 grant from the U.S. Department of Agriculture's National Institute of Food and Agriculture to develop and implement the nation's first National Center of Excellence in Dairy Production Medicine Education for Veterinarians. And the University's Board of Regents allocated an additional \$1.6 million to the Veterinary Diagnostic Laboratory for the fiscal year 2012-13 biennium, affirming its important work for the state.

The remarkable education we provide would not be possible without the support and recognition of key donors, stakeholders, and legislators. This support—coupled with our dedication to our students and local, national, and international partnerships and initiatives—ensures that the College will be an integral part of President Kaler's efforts to make the University of Minnesota a world leader in global initiatives.

With warm regards,



Trevor Ames, D.V.M., M.S., Diplomate ACVIM
Dean



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Center for Animal Health and Food Safety

10 years of collaborative leadership

Every morning, the College of Veterinary Medicine's Center for Animal Health and Food Safety (CAHFS) combs the news for threats to animal health, food safety, and public health.

"We constantly have our ears up for emerging issues that have the potential to affect animal health, public health, and food safety in the United States and around the world," says Dr. Jeff Bender, former director of CAHFS. Veterinary public health and preventive medicine residents determine the key issues in the day's news, synthesize the data, and disseminate a report to government regulators, industry leaders, and policymakers. Through networking and partnering with these key players, CAHFS has played a significant role in alerting leaders to emerging issues and in developing solutions to real-world threats.

CAHFS grew out of two high-profile public health issues related to animal health and food safety. The first, an outbreak of *E. coli* traced to Jack in the Box restaurants, occurred in 1993. It was the largest *E. coli* outbreak in American history at the time, killing four people and sickening hundreds of others. The second incident occurred a few years later, when scientists recognized a new human disease, variant Creutzfeldt-Jakob disease, which is related to bovine spongiform encephalopathy, or mad cow disease. Both

of these high-profile public health issues sent shockwaves through the agricultural community and consumers and convinced Minnesota policymakers that government agencies, veterinarians, and public health officials needed to work together to combat emerging threats to food safety.

In 2001 the College of Veterinary Medicine responded by forging partnerships with the College of Food, Agricultural and Natural Resource Sciences and the School of Public Health to launch CAHFS with the aid of \$500,000 from the Minnesota Legislature.

"We tend to be involved in high-profile activities," says Bender. "Shortly after CAHFS was launched, the September 11 terrorist attack occurred, and we were immediately involved with security and terrorism issues, including outreach and education following the anthrax letters. We also became involved with West Nile virus, monkeypox, and chronic wasting disease as these issues emerged."

The growth of CAHFS

"CAHFS is able to effectively respond to emerging public health issues by finding new ways to leverage resources through organizational partnerships, flexible staffing models, and 'on-call' senior fellow expertise," says Linda Valeri, director of operations.

When its doors opened, CAHFS had one full-time faculty member and one full-time staff employee. Today, CAHFS engages 10 veterinary public health faculty and 13 staff members as well as graduate students, residents, fellows, and senior fellows. Funding has also increased. Since 2006, more than \$17 million has been raised in grants, gifts, affiliation agreements, and external sales.

Over the past 10 years, several initiatives and organizations have also grown out of CAHFS, including:

- The National Center for Food Protection and Defense, which focuses on anticipating and preventing intentional food safety outbreaks
- SSafe (Safe Supply of Affordable Food Everywhere), which fosters the continuous improvement and global acceptance of internationally recognized food protection systems and standards
- Global Initiative for Food Systems Leadership (GIFSL), which remains part of CAHFS and focuses on building shared leadership for food systems so that everyone has access to safe, affordable, and nutritious food

"The tendency for those working in food systems has been to approach challenges as technical issues, such as the need for higher crop yields or better storage," says

Public health, a longtime component of veterinary medicine

The Veterinary Oath requires veterinarians to work to benefit society and promote public health:

"Being admitted to the profession of veterinary medicine, I solemnly swear to use my scientific knowledge and skills for the benefit of society through the protection of animal health and welfare, the prevention and relief of animal suffering, the conservation of animal resources, the promotion of public health, and the advancement of medical knowledge."



Linda Valeri, director of operations, discusses CAHFS and GIFSL at the annual One Health Partnerships workshop at the University of Minnesota.

Dr. Will Hueston, executive director of GIFSL and first director of CAHFS. “We saw these challenges as systems problems that required people who could effectively work across the sectors to achieve global food safety and security. We also saw an absence of people who had this ability, so we created the Global Initiative for Food Systems Leadership.”

“GIFSL offers leadership development programs within the context of food systems through partnerships with intergovernmental organizations, foundations, industry, and government agencies,” says Valeri. GIFSL’s partners include the United Nation’s Food and Agriculture Organization, World Organization for Animal Health, Rockefeller Foundation, universities from five continents, Inter-American Institute for Cooperation on Agriculture, Canadian Food Inspection Agency, General Mills, Cargill, Ecolab, and Davisco.

Educating tomorrow’s leaders in veterinary public health

CAHFS accomplishes its core mission—to create and facilitate strong working relationships among food systems professionals, trade organizations, government regulators, public agencies, and academia in an effort to anticipate emerging animal health and food safety issues affecting public health and promote effective, science-based solutions—by employing an interdisciplinary, hands-on approach to education, research, and service.

The University of Minnesota College of Veterinary Medicine was the first in the nation to offer a post-graduate veterinary public health and preventive medicine (VPH) residency, a two-year applied learning program that contributes to residents’ eligibility to take specialty board exams through the American College of Veterinary Preventive Medicine (ACVPM). In total, CAHFS has trained 21

residents, and the 14 residents who sat for the ACVPM boards have become certified.

CAHFS residents have come from as far away as Africa, Europe, and the Caribbean to attend the program and have gone on to secure positions at many prestigious institutions, including the Centers for Disease Control and Prevention, the USDA’s Animal and Plant Health Inspection Service, Institute for Science on Global Policy, American Veterinary Medical Association, Minnesota Board of Animal Health, and several universities. Currently six residents, with interests in a wide range of fields including companion animal medicine, swine production, malaria research, and nation building, are enrolled in the program.

CAHFS was also instrumental in developing a dual-degree program, a combination D.V.M. and master of public health (M.P.H.), launched in 2003. “It allows students enrolled in a D.V.M. program at any accredited veterinary



Students tour the wastewater treatment plant in Owatonna, Minnesota, as part of a public health rotation. Photo by Sue Kirchoff

school to concurrently obtain an M.P.H.,” says Dr. Larissa Minicucci, co-director of the VPH residency program and director of the D.V.M./M.P.H. program. “Fifteen veterinary schools are currently represented by the more than 100 students enrolled in the program.” Since the first D.V.M./M.P.H. graduate in 2007, more than 60 students have completed the program.



Dr. Larissa Minicucci, co-director of the VPH residency program and director of the D.V.M./M.P.H. program

Deb Olson, associate dean for education and professor at the School of Public Health, was an early collaborator with

CAHFS in developing the education programs. “The D.V.M./M.P.H. program, the veterinary public health residency, the Public Health Institute (see sidebar)—everything we’ve started with regard to One Health—has been truly collaborative,” says Olson. She adds that CAHFS doesn’t just give lip service to the role it plays in public health. “CAHFS has talented people doing extraordinary things—and they’re willing to work as a One Health team to make them happen.”

CAHFS also offers students, faculty, and professionals experiential training opportunities, including local, national, and international policy courses, an intergovernmental organization course, a farm-to-table study program, and an executive program for food safety leadership.

Service through applied research

CAHFS’s strong educational programs are a lynchpin in its service and research missions, which it accomplishes through applied learning using a three-pronged

research model. “We focus on addressing critical, real-world problems,” says Dr. Scott Wells, director of academic programs. “Our research is done in partnership with at least one other stakeholder, and we take a multidisciplinary approach, involving a number of professionals with different skills—epidemiologists, risk assessors, industry professionals, and others.”



Dr. Scott Wells, director of academic programs

For example, in partnership with the USDA’s Animal and Plant Health Inspection Service, CAHFS has been working with industry representatives to develop proactive risk assessments supporting emergency response in the event of an outbreak of avian influenza. Dr. Tim Goldsmith, assistant clinical professor and co-director of the public

Public Health Institute targets professionals

The University of Minnesota Summer Public Health Institute was conceived over lunch in 2001 by Dr. Will Hueston and Deb Olson, who shared an interest in developing a new education model that would be practical, hands-on, and designed for people working in the public health field.

“We sketched out on a napkin what is now the Public Health Institute,” Hueston recalls. “Together we found the money and created the courses, and six months later, it happened. We started with 35 students, and today there are 250 or more.” The Public Health Institute also helped spawn the D.V.M/M.P.H. dual-degree program.

Now in its 11th year, the three-week program offers courses for individuals practicing in or studying public health and related fields. Learning from local, national, and international faculty and leading experts, participants expand their professional expertise, learn best practices, broaden career options, network with other professionals, and explore new areas of interest. Course content emphasizes theory to practice, with field trips, case studies, hands-on labs, and simulations. Courses focus on topics like *Salmonella* and *E. coli*, while a conventional curriculum might only touch on these subjects for a lecture or two.

“For example, the influenza course looked at diagnosis, prevention, and control of the disease in people and animals, with lectures by a wildlife specialist, a veterinarian, an ecologist, and an epidemiologist—an interdisciplinary team of professionals,” Hueston says.

The 2012 Public Health Institute is scheduled for May 21-June 8 at the University of Minnesota. For more information and to register, visit www.sph.umn.edu/ce/institute.

“CAHFS’s idea was to get everyone—industry, academia, government agencies—together . . . Now we understand that we all want to accomplish the same goals and can best accomplish this mission through a collaborative public-private partnership. I don’t think we would be where we are today without having had CAHFS to facilitate the process.”

Todd McAloon

Vice President of Global Poultry Food Safety and Quality, Cargill

health residency program, along with a team of public health residents, faculty, technical experts, and industry partners, has developed risk assessments for pasteurized liquid eggs, washed and sanitized eggs, and other egg products as part of the Secure Egg Supply Plan. These risk-based decision tools will help prevent a disruption in the food supply in the event of an outbreak of highly pathogenic avian influenza in the United States while effectively controlling the spread of the disease to other birds.

Todd McAloon, vice president of global poultry food safety and quality at Cargill, has worked with CAHFS on a number of projects, including Goldsmith’s. He approached CAHFS seven years ago after an H5N1 highly pathogenic avian influenza outbreak caused a major disruption in the export market, affecting Cargill’s poultry business in Thailand.

“CAHFS’s idea was to get everyone—industry, academia, government agencies—together to discuss how a similar disease outbreak could be managed in the United States,” says McAloon. “There wasn’t a lot of trust originally between industry and government entities, but CAHFS was able to facilitate the bringing together of the team and the discussion. Now we understand that we all want to accomplish the same goals and can best accomplish this mission through a collaborative public-private partnership. I don’t think we would be where we are today without having had CAHFS to facilitate the process.”

In partnership with the Minnesota Board of Animal Health (BAH), CAHFS faculty and residents were also instrumental in developing a risk assessment and herd control program for Johne’s disease, an economically crippling disease of cattle. The program gives Minnesota producers the option of completing a risk assessment and achieving a “negative” herd status. The research team, under the direction of Wells and Dr. Sandra Godden, a professor at the College of Veterinary Medicine, has also conducted clinical trials to develop best practices for the control of Johne’s disease.

“Working with CAHFS has allowed us to move the Johne’s disease program ahead,” says Dr. Bill Hartmann, state veterinarian and BAH executive director. “We have been able to help some producers eliminate Johne’s disease from their herds, and today we are seeing less clinical Johne’s disease as a result of the program.”

To expand its influence in food-safety policy, CAHFS recently hired Gene Hugoson, former Minnesota agriculture commissioner and legislator.

“A disease outbreak would bring shipments of animal products and animals to a screeching halt,” says Hugoson. “How quickly shipments resume could mean the difference between economic inconvenience and economic disaster. My job is to meld policy with technical expertise and to work with the scientific community so it can better understand and deal with the reality of politics that surround an emergency situation.”

The next 10 years

CAHFS's many accomplishments no doubt will continue to grow along with the emerging issues affecting the interface between animal and human health. New projects are already in the incubation phase.

"We have a number of people coming to us wanting to replicate our residency program or partner with us," says Bender. "We are having active conversations with Chiang Mai University in Thailand and have partnered with Makerere University in Uganda. Both institutions have identified individuals they would like us to train, so these leaders can return to their respective countries and apply the CAHFS model."

CAHFS is also considering offering an ecosystem health residency in partnership with the RESPOND Project, one of several USAID (United States Agency for International Development) projects that work to pre-empt or combat the first stages of emerging zoonotic pandemics. CAHFS's involvement with the U.S. military will also increase as it continues to train veterinarians to work in developing countries providing leadership and partnerships to address a myriad of challenges.



Dr. Jeff Bender predicts further growth and expansion for CAHFS in the next 10 years. Photo by Sue Kirchoff

"My hope is that over the next 10 years, we will expand our residency program, hire more mentors, expand our community and partner networks, and continue to enhance public health through collaborative leadership," says Bender. "As a result, we hope to better educate our residents and program participants and ultimately protect the public from emerging public health issues."



Dr. Jeff Bender leads a discussion at the One Health Partnerships Workshop. The annual workshop brings together representatives of colleges of veterinary medicine, government, industry groups, and corporations from around the world.

CAHFS accomplishments at a glance



- First to offer a veterinary public health residency program
- First to graduate American College of Veterinary Preventive Medicine board-eligible residents
- Expanded accessibility to M.P.H. degrees for veterinary students across the United States
- Co-developed the Public Health Institute
- Instrumental in developing a Johne's disease risk assessment, herd control, and classifications programs for U.S. cattle herds
- Developed bovine tuberculosis cattle-wildlife interactions exposure assessment; currently developing targeted surveillance strategies
- Facilitated innovative government-industry-academic partnerships to strengthen U.S. Transboundary Animal Disease Emergency Response Plans
- Launched annual One Health Partnerships Workshop in 2008
- Spawned the Global Initiative for Food Systems Leadership

For more on CAHFS and its programs, visit www.cahfs.umn.edu.

Four cooperating universities receive \$700,000 dairy grant

Veterinary colleges at the University of Minnesota, University of Georgia, University of Illinois, and Kansas State University have received a \$700,000 grant to develop and implement a National Center of Excellence in Dairy Production Medicine Education for Veterinarians. The funding was awarded through the U.S. Department of Agriculture's National Institute of Food and Agriculture.

“This grant provides an exciting opportunity to bring educators and veterinary students together for enhanced production medicine training that would not be possible at a single institution,” says Dr. John Fetrow, professor of dairy production medicine, and director of the center.

The grant is being used to create a “Center of Excellence” as authorized in the 2008 federal agricultural appropriations bill. The national Center of Excellence will address the ongoing need for enhanced education for food animal medicine as the four universities develop and deliver a highly specialized and intensive series of training rotations for senior veterinary students pursuing careers in dairy veterinary medicine. In addition to serving veterinary students from the four cooperating universities, the center will serve as a model for future centers.

The \$700,000 grant is part of the Higher Education Challenge Grants Program, which makes awards based on how well programs address local, regional, national, or international educational needs, whether they involve nontraditional or creative approaches that can serve as a model, and whether they encourage cooperation among universities and between academia and private business.

“As our nation’s animal production systems change, veterinarians need enhanced and broader education so they can serve those industries and promote safe and wholesome food production and animal welfare,” Fetrow says.



Thousands of milk cows are available for veterinary students to learn from at the Dairy Education Center near St. Peter, Minnesota. Photo by Andre Nault

The universities involved in the National Center of Excellence in Dairy Production Medicine Education for Veterinarians will also partner with the private sector through the University of Minnesota’s Dairy Education Center. Through an affiliation with Davis Family Dairies, LLC, and its sister company Davisco Foods International, the University of Minnesota has access to two state-of-the-

art private dairy facilities with a combined total of 7,000 milk cows. Davis Family Dairies owns and operates the facilities while the University of Minnesota College of Veterinary Medicine provides health care to the herds as part of its teaching program for students interested in careers in dairy medicine.

Students from all four universities will live at the Dairy Education Center during four two-week clinical rotations that focus on dairy health management, production systems, food safety, and food system security.

“This project offers veterinary students interested in serving the dairy food system a unique opportunity for advanced training in a new and more cost-effective way,” says Dr. Trevor Ames, dean of the College of Veterinary Medicine. “Students trained in the program will graduate with significantly enhanced skills in dairy veterinary medicine, which will enrich their ability to serve dairy clients and succeed as dairy food system veterinarians. In turn, society will ultimately benefit as these highly trained specialists better protect and serve the national and global food systems. Moving forward, such Centers of Excellence may become the principal way veterinary colleges address educational needs of students who will serve food production systems.”



Veterinary students at the Dairy Education Center. Students from four universities will live at the Dairy Education Center during four two-week clinical rotations.

NIH awards CVM five-year grant for Summer Scholars program

The National Institutes of Health's National Center for Research Resources has awarded the College a five-year, \$145,000 training grant for the project "Veterinary Summer Scholars in Comparative Medicine." The training grant will be used to expand the College's Summer Scholars training program and provide an eight-week summer research training experience for five D.V.M. students each year. Thirty program faculty from across the University of Minnesota's Academic Health Center will be involved in training the students.

The principal investigator on the training grant is Bruce Walcheck, professor. Drs. Cathy Carlson, Jaime Modiano, and Bert Stromberg make up the consultative committee for the program.



Regents allocate more funds to Veterinary Diagnostic Laboratory

In September, the University of Minnesota Board of Regents approved President Eric Kaler's budget proposal for an additional \$50 million allocated to the University by the Minnesota Legislature—which included an additional \$1.6 million for the Veterinary Diagnostic Laboratory (VDL) for the fiscal year 2012-13 biennium.

"By allocating these much-needed funds to the VDL, President Kaler and the Board of Regents demonstrated their commitment to supporting the VDL and the essential services it provides," says CVM Dean Trevor Ames.

College celebrates Research Day

On October 19, the College's annual Points of Pride Research Day celebrated research programs, researchers, and the partners who make much of the research possible. The day included a poster competition, award presentations, seminars, and a reception.

Davis Family Dairies was named Distinguished Research Partner, and the award was accepted by Mitch Davis, vice president, research and development. Pfizer Research Excellence Award recipient Dr. Srinand Sreevatsan, associate professor of infectious disease, presented "Mycobacterial Covert Operations—Pretense, Persistence, and Strategic Programming," and Distinguished Research Alumnus Dr. John Kaneene, university distinguished professor of epidemiology and director of the Center for Comparative Epidemiology at Michigan State University, presented "Comparative Studies of Antimicrobial Resistance in Animals and Humans."

Poster competition winners were—

- **Summer Scholar:** Dane Goede
- **Post-doctoral:** Dr. Xiaona Ge, Dr. Srirama Rao's lab
- **Graduate student, emerging and zoonotic diseases signature program:** Ahmend Abdallah, a Ph.D. student in the veterinary medicine graduate program who works in Sreevatsan's lab
- **Graduate student, population systems signature program:** Carmen Alonso, an M.S. student in the veterinary medicine graduate program whose advisors are Drs. Peter Davies and Scott Dee
- **Graduate students, comparative medicine signature program:** Aric Frantz, a Ph.D. student in the comparative and molecular biosciences graduate program whose advisors are Drs. Jaime Modiano and Timothy O'Brien; and Chunmei Long, a Ph.D. student in the comparative and molecular biosciences graduate program whose advisor is Dr. Bruce Walcheck



Above left: A student discusses her poster with Dr. Tom Molitor, chair of the Veterinary Population Medicine Department, and Dr. Mark Rutherford, associate dean for graduate programs. Above right: Dr. Srirama Rao, associate dean for research, and Dr. Trevor Ames, dean, present the Distinguished Research Partner Award to Mitch Davis, vice president, research and development, Davis Family Dairies. Below left: Rao and Dr. Scott Wells, professor and division head, veterinary public health, present the Distinguished Research Alumnus Award to Dr. John Kaneene. Below right: Rao and Molitor present the Pfizer Research Excellence Award to Dr. Srinand Sreevatsan.

Welcoming President and Mrs. Kaler

University of Minnesota President Eric Kaler, and his wife, Karen Kaler visited the College on September 19 as part of a tour of the St. Paul Campus. On September 24, Karen Kaler released a bald eagle at The Raptor Center's annual Fall Raptor Release at Carpenter St. Croix Valley Nature Center in Hastings, Minnesota. President Kaler returned for another visit in November to tour the Veterinary Diagnostic Laboratory and meet with College of Veterinary Medicine researchers.

Above right: Karen Kaler, Eric Kaler, Dr. John Ohlfest, John Huls, Dr. R. J. Ganz, Mary Johnson, and Dr. Liz Pluhar with Piper, a 14-year-old golden retriever undergoing treatment for brain cancer in a clinical trial offered at the Veterinary Medical Center. (See story on page 14.)



Below left: President Kaler heard about the work of the Veterinary Diagnostic Laboratory from Dr. Jim Collins, director. Right: Kaler (far right) met with a group of College researchers, including Drs. Scott Wells, Jeff Bender, Alvin Beitz, Srirama Rao, and Richard Isaacson.



Back to the wild

Karen Kaler, the wife of University of Minnesota President Eric Kaler, released a rehabilitated bald eagle to the wild at The Raptor Center's annual Fall Raptor Release on September 24. First, volunteer Terry Headley carefully transferred the eagle to Kaler, sharing instructions about how to grasp the raptor's legs and cradle its body. After a moment of anticipation, Kaler tossed the eagle into the air, and he flew off over the crowd. *Photos by Sue Kirchoff*

Thank you

We are pleased to list the individuals, foundations, corporations, and organizations that committed or contributed \$1,000 or more during fiscal year 2011 (July 1, 2010 to June 30, 2011). We regret that space limits us to listing only those who have contributed that amount. Every donor is important to us, and your continuing support helps make our work possible.

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Thank you

Veterinary research aids human trials

In 2008, Dr. Elizabeth Pluhar, a surgeon at the University of Minnesota College of Veterinary Medicine, and Dr. John Ohlfest, a researcher at the Masonic Cancer Center, successfully performed an experimental procedure to treat a dog with brain cancer. The novel three-pronged treatment protocol involved surgical removal of the primary brain tumor, treatment of the surgical site with a form of gene therapy to attract immune cells to destroy remaining tumor cells, and administration of an anti-cancer vaccine made from the patients' own cancer cells. The dog survived an aggressive form of cancer, and, a year later, the treatment became available for other dogs with brain cancer.

When the College sent a letter to veterinarians announcing the new clinical trial, little did they know that cancer patient John Huls, 63, would hear about the revolutionary new treatment from his friend Dr. R.J.

Ganz, a 1963 graduate of the College. Huls had recently been diagnosed with a glioblastoma stage IV brain tumor at the Mayo Clinic, Rochester. After surgery at the Mayo Clinic and University of California, Los Angeles—the first to remove the original tumor and the second to remove a recurring tumor—he underwent chemotherapy. In June 2011, he stopped chemotherapy and enrolled in a Phase I clinical trial being offered through the University of Minnesota's Masonic Cancer Center and University of Minnesota Medical Center, Fairview. The experimental treatment was very similar to that used at the Veterinary Medical Center (VMC): a vaccine made from the patient's own cancer cells.



John Huls with Piper in September. Piper was euthanized in October when her overall health deteriorated and her owners felt her quality of life was poor—but there was no evidence that her brain tumor had recurred. Photo by Sue Kirchoff

Huls says that the vaccine, which is given in a subcutaneous injection at the back of his neck, is the easiest cancer treatment he has received to date. “I feel very good,” he says. “My energy level is much better than it was when I was on chemotherapy.” In September, he was at the VMC during a visit by U of M President Eric W. Kaler and his wife, Karen (see story on page 11), where he also met Piper, a 14-year-old golden retriever enrolled in the canine brain tumor clinical trials program. Pluhar and Ohlfest, who developed the treatment protocol being used in both the canine and human trials, were also on hand to greet Huls and the Kalers, as were several representatives of the news media.

Pluhar summarized the canine brain tumor clinical trials program, reporting that, so far, more than 70 dogs with primary brain tumors, either gliomas or meningiomas, have been treated in the ongoing trials, which have funding for an additional 60 qualifying dogs.

“We are using the body's own immune system to attack the tumor cells,” she explains. “We have had some pretty remarkable results in dogs. Almost every dog with a meningioma that we've treated with surgery and vaccine therapy is still alive with no evidence of a tumor. Some dogs were treated two years ago and are doing great. We've also had some dogs with low-grade glioma that are long-term survivors with no sign of a tumor.”

Pluhar notes that high-grade tumors like Huls' have always recurred in trial dogs. But without treatment, the average survival time is only two months. With treatment, the time until tumor recurrence is seven to nine months.

Whether humans will see a similar response is uncertain. Like dogs, human patients receiving the treatment undergo regular blood tests and MRIs to monitor their progress while enrolled in the trials. So far, John Huls' MRIs have shown no tumor recurrence, and he believes there eventually will be a vaccine that prevents tumor recurrence for his type of cancer.

John Ohlfest agrees. “I won't be satisfied until I can look people like you in the eye and say we have found a cure,” he told Huls.

CVM part of teaching and research initiative in China

The University of Minnesota College of Veterinary Medicine (CVM) is part of an international consortium of veterinary schools in the United States and United Kingdom that is working with industry to promote veterinary education and research in China.

In addition to the CVM, the International Veterinary Consortium for China (IVCC) includes three other U.S. veterinary schools, Iowa State, California-Davis, and Kansas State; the University of Nottingham School of Veterinary Science and Royal Veterinary College in the United Kingdom; and Pfizer Animal Health. The IVCC aims to support improvement in China's veterinary education practices and to strategically improve animal productivity, welfare, and veterinary public health through cooperation with partner institutes in China. Over the next three years, the consortium will introduce outreach activities in dairy and pig health and postgraduate opportunities and training in veterinary public health.

China swine conference planned

With 27 years of history, the Lemna Swine Conference is the world's largest annual educational event for the global swine industry. In 2011, more than 800 participants from 25 countries attended the conference in St. Paul, Minnesota, where professionals in swine production, animal health management, and marketing from around the world exhibited their products and services.

In 2012, the College plans to bring the Lemna Swine Conference to China, the world's largest pork-producing country. Experts from the U.S. and China will present the latest developments in swine research and production, disease surveillance and control, integration of production and public health, and their impacts on the global economy. Tentatively planned for October 15-17, the conference will be held in Xian, China.



Participants in the Camelid Health Conference gather for a photo at the Leatherdale Equine Center.

Camelid professionals educate and engage

The College of Veterinary Medicine hosted the Second Annual Camelid Health Conference in January. The two-day conference featured Dr. Ahmed Tibary from Washington State University, who provided veterinarians, veterinary technicians, and camelid owners with information on camelid reproduction strategies.

"Dr. Tibary is an interesting, dynamic speaker who is very approachable," commented one attendee. Participants also took part in a day of hands-on training and handling of camelids led by Camelidynamics founder Marty McGee Bennett.

"What a great weekend!" said Dr. Anna Firshman, conference faculty coordinator. "We got to meet so many people and showcase the College in such a positive way, not only to camelid vets and owners, but to owners of a variety of species. Mixed and small-animal vets came from throughout the region and from as far away as Texas."



Visitors from Korea Zoonosis Research Institute tour VDL

Dr. Jim Collins, director, Ron Joki, senior scientist, and Dr. Han Soo Joo, professor, hosted a tour of the Veterinary Diagnostic Laboratory for three visitors from Korea in October. Byeong Kirl Baek, director of the Korea Zoonosis Research Institute at Chonbuk National University in Jeonju, Korea, and Ji-Wong Kang and Sang Moo Kim from Nara Controls in Seoul got a behind-the-scenes look at the VDL's biosafety level-3 lab, biohazardous waste disposal system (tissue digester), and other facilities.



Make way for green space

The 110-year-old Veterinary Anatomy Building (also known as "Old Anatomy") was demolished in September, making way for green space north of the Veterinary Medical Center.

Honored

The American Veterinary Dental College (AVDC) presented the Peter Emily

AVDC Service Award to **Dr. Gary Goldstein**, associate medical director, at the Veterinary Dental Forum in Boston in November. The annual award is presented to an outstanding diplomate of the AVDC for contributions to the field of veterinary dentistry. **Dr. Kevin Stepaniuk**, assistant clinical professor, received the American Veterinary Dental Society Student Chapter Mentor Award.



Gary Goldstein



Jody Lulich

Hill's Pet Nutrition recognized **Dr. Jody Lulich**, professor, with the 2012 Mark L. Morris, Sr., Lifetime Achievement Award at the North American Veterinary Conference in January. Lulich received the award based on his significant achievements in nephrology, urology, education, and work with the Minnesota Urolith Center.

Dr. Helen Michael, a veterinary resident in the Veterinary Clinical Sciences Department, was the recipient of the American Society for Veterinary Clinical Pathology Young Investigator Award for her work with NK ("natural killer") cells.



Right: Dr. Sandra Godden is presented with the Outstanding Faculty Award by Dr. Mike Hodgman, president of the Minnesota Veterinary Medical Association. Center: Hodgman presents Dr. Bill Hartmann, class of 1978, with the President's Award. Left: Dr. Clark Fobian, American Veterinary Medical Association Executive Board, with Veterinarian of the Year Dr. John Howe, class of 1977.

Minnesota Veterinary Medical Association honors faculty member, alumni—and patient

The College was well-represented at the Minnesota Veterinary Medical Association and Minnesota Association of Veterinary Technicians (MAVT) meetings at the Hyatt Regency Minneapolis February 2-4. In addition to presentations and booths staffed by faculty, staff, and alumni, the College hosted an alumni reception with the Alumni and Friends Society. Other highlights included:

- **Dr. Sandra Godden**, professor, received the Outstanding Faculty Award, which is presented to a University of Minnesota College of Veterinary Medicine faculty member who has provided outstanding service to Minnesota veterinarians, given time and talent to the veterinary profession, and been a dedicated contributor to organized veterinary medicine.
- **Missy Greer**, veterinary case manager, was elected president of the MAVT.
- Seven CVM students were awarded scholarships (see page 20).
- **Dr. John Howe**, class of 1977, was named Veterinarian of the Year.
- **Dr. Bill Hartmann**, class of 1978, received the President's Award.
- **Buster**, a dog treated at the Veterinary Medical Center after being stabbed by a burglar in his St. Paul home, received the Hero Animal Hall of Fame Award.

Hero Animal Hall of Fame Award honoree fought to protect home from burglar

Buster, a 9-year-old boxer, was home alone in St. Paul one October day when a burglar broke in. The intruder stole cash, computers, a hunting bow, and three rifles, and then turned a 6-inch hunting knife on Buster, who suffered gashes to his throat, shoulder, and jowls. Several of the dog's teeth were also broken as he tried to defend himself and his home.



Buster

"Every room of my house was filled with blood. It was like a murder scene," said Larry Wagaman, Buster's owner, who returned home shortly after the break-in. Buster was rushed to the University of Minnesota Veterinary Medical Center, where a team of board-certified specialists stabilized him and tended to his injuries. Lacerations in his laryngeal region led to subcutaneous edema over much of his body, requiring several days in the Intensive Care Unit.

Wagaman wasn't surprised Buster fought so hard to protect the house he's lived in since he was a puppy. "He's a dog that comes around every 100 years. He's just awesome," Wagaman said.

The Minnesota Veterinary Medical Association agreed, honoring Buster with a Hero Animal Hall of Fame Award.

Dr. Jaime Modiano, Perlmann Professor of Animal Oncology and director of the Animal Cancer Care and Research program, received the Asa Mays Excellence in Canine Health Research



Jaime Modiano

Award at the American Kennel Club Canine Health Foundation conference in St. Louis in August. The award is a biennial honor presented to research investigators who demonstrate meritorious advancements in furthering the mission of identifying, characterizing, and treating canine disease and ailments.

Dr. Kakambi Nagaraja, professor in the Veterinary and Biomedical Sciences Department, received the Bruce W. Calnek Applied Poultry Research Achievement Award from the American Association of Avian Pathologists (AAAP) at the American Veterinary Medical Association Annual Convention in July. The Bruce W. Calnek Achievement Award is given to a member of AAAP who has made outstanding research contributions resulting in a measurable, practical impact on the control of one or more important diseases of poultry.

Dr. Lisa Powell, Dr. Nate Rose, Dr. Andrea Johnston, and Kim Barrett, rehabilitation specialist, received Minnesota Public Safety Service Awards for their efforts to help Major, a police dog who was stabbed in the line of duty in November 2010.

Dr. Peggy Root Kustritz, professor of theriogenology and vice chair of the Veterinary Clinical Sciences Department, was inducted into the AHC Academy of Excellence in the Scholarship of Teaching and Learning in October.



Peggy Root Kustritz

Promoted

Nine CVM faculty members have been promoted:

- **Dr. Kari Anderson**, promoted to full clinical specialist
- **Dr. Anibal Armien**, promoted to associate clinical specialist
- **Dr. Jeff Bender**, promoted to professor with tenure
- **Dr. Julie Churchill**, promoted to associate clinical specialist
- **Dr. Lynelle Graham**, promoted to full clinical specialist
- **Dr. Peggy Root Kustritz**, promoted to professor
- **Dr. Rebecca Merica**, promoted to assistant professor
- **Dr. Edward Patterson**, promoted to associate professor
- **Dr. Lisa Powell**, promoted to full clinical specialist

Elected

Dr. Kari L. Anderson, clinical professor, was elected president of the American College of Veterinary Radiology (ACVR) for 2012. A specialty organization recognized by the American Veterinary Medical Association, the ACVR certifies veterinarians with advanced specialty training in diagnostic imaging and radiation oncology as board-certified veterinary radiologists and board-certified veterinary radiation oncologists.



Kari L. Anderson



Leslie Sharkey

Dr. Leslie Sharkey, associate professor, has been elected president of the American Society for Veterinary Clinical Pathology, a scientific organization dedicated to scientific advancement, education, and standards in veterinary clinical pathology and diagnostics.

For up-to-date news and information about the College of Veterinary Medicine, visit our Web site at www.cvm.umn.edu.

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GRADUATE PROGRAM NEWS

First Sam Maheswaran Fellowship awarded to Dr. Cesar Corzo



Dr. Cesar Corzo with a group of research pigs. Corzo is studying swine influenza virus. Photo by Sue Kirchoff

The inaugural Sam Maheswaran Fellowship in Food Animal Health has been awarded to Dr. Cesar Corzo, a third-year Ph.D. student in the veterinary medicine graduate program.

Corzo's research focuses on understanding the epidemiology of swine influenza virus, a highly transmissible primary respiratory pathogen of pigs that causes losses due to poor growth performance in affected herds. Corzo hails from Bogota, Colombia, where he earned his D.V.M. at the Universidad De La Salle in 2002. He is

co-advised by Drs. Marie Gramer and Bob Morrison.

Dr. Sam Maheswaran earned his M.S. and Ph.D. degrees at the University of Minnesota College of Veterinary Medicine. During a career spanning more than 40 years, he published 110 refereed research manuscripts in the area of food animal health and mentored 25 graduate students, several of whom are academic leaders at universities around the world. The Sam Maheswaran Fellowship in Food Animal Health was established in

Maheswaran's honor through lead gifts by Dr. Randy and Susan Simonson, Newport Laboratories, and Drs. Trevor and Kathy Ames.

Support this fellowship

To contribute to the fellowship and support research in bovine, porcine, and avian health, contact Bill Venne, chief development officer, at 612-624-8480 or venne025@umn.edu.

Six students successfully defend Ph.D.s

The following students have successfully defended their Ph.D. theses:

- **Dr. Susan Detmer**, advised by Drs. Marie Gramer and Sagar Goyal. Thesis: "Control and Characterization of Influenza A Viruses in Swine." Detmer is now an assistant professor at the Western College of Veterinary Medicine, University of Saskatchewan.
- **Dr. Josephine Gnanandarajah**, advised by Dr. Michael Murtaugh. Thesis: "Role of Oxalate Metabolizing Bacteria in Calcium Oxalate Urolithiasis in Dogs." Gnanandarajah has accepted a post-doctoral position in the Department of Pediatrics at the University of Minnesota Medical School.
- **Dr. Elise Lamont**, advised by Dr. Srinand Sreevatsan. Thesis: "Survival Strategies of *Mycobacterium avium* subsp. *paratuberculosis* in a Variety of Microenvironments." Lamont is continuing her work as a postdoctoral scientist in Sreevatsan's group.
- **Dr. Juan Li**, advised by Dr. Michael Murtaugh. Thesis: "Structural and Functional Characterization of Porcine Reproductive and Respiratory Syndrome Virus N-Glycans." Li is applying for post-doctoral positions at the California Institute of Technology.
- **Dr. Chun-Mei Long**, advised by Dr. Bruce Walcheck. Thesis: "Role of Leukocyte ADAM17 in Regulating Neutrophil Recruitment During Sepsis." Long is seeking a postdoctoral scientist position in immunology.
- **Dr. Duane Robinson**, advised by Dr. Michael Conzemius. Thesis: "Development of a Fracture Osteomyelitis Model in the Rat Femur." Robinson has accepted an assistant professor position in the Department of Clinical Sciences at Louisiana State University College of Veterinary Medicine.

Annette McCoy named AAEP research fellow

Dr. Annette McCoy, a student in the comparative and molecular biosciences graduate program, has been named AAEP (American Association of Equine Practitioners) Foundation Past Presidents' Research Fellow.

McCoy's research focuses on osteochondrosis, a common disease affecting young horses. Osteochondrosis is caused by a failure of normal cartilage development at the end of long bones (such as those found in the legs) and vertebrae (in the neck and back). This condition can cause joint swelling and lameness in young horses and frequently requires surgery to treat. Both genetic and environmental factors, such as diet, play a role in the development of the disease, but the specific genes underlying disease risk are unknown. McCoy and her team are using young standardbred racehorses, a breed particularly prone to osteochondrosis, as a model population for identifying these risk genes, and employing a combination of approaches, including genome-wide association studies and next-generation sequencing technology.



Annette McCoy with Hercules at the Leatherdale Equine Center

"Our long-term goal is to develop a genetic risk model for susceptibility to osteochondrosis, allowing for genetic testing and quantification of risk for individual horses," McCoy says. "Improved risk assessment will facilitate management changes and early intervention in high-risk horses and allow for informed breeding decisions in high-risk breeds and pedigrees."

Kate Barry is new graduate programs associate

Kate Barry joined the Office of Graduate Programs as graduate programs associate in December. Barry is responsible for managing the admission process, maintaining graduate programs Web pages, coordinating recruitment and orientation programs, and day-to-day support of the comparative and molecular biosciences and veterinary medicine graduate programs. She was previously with the Department of Pediatrics at the University of Minnesota Medical School.

Students recognized at CRWAD

Five College of Veterinary Medicine graduate students received awards for their scientific presentations at the 2011 Conference of Research Workers in Animal Diseases in December.

- **Dr. Matt Allerson** received an award from the Association of Veterinary Epidemiology and Preventive Medicine for the best epidemiology and animal health economics talk.
- **Dr. Carmen Alonso's** presentation won the Biosafety and Biosecurity Award from the Joseph J. Gabarino Foundation.
- **Dr. Hyeun Bum Kim** won an award for best enteric disease research presentation.
- **Sally Robinson** received an award for the best American College of Veterinary Microbiologists presentation.
- **John Schwartz** won an award from the American Association of Veterinary Immunology.

Minnesota Veterinary Medical Foundation awards seven scholarships

The Minnesota Veterinary Medical Foundation awarded seven scholarships to College of Veterinary Medicine students at the Minnesota Veterinary Medical Association annual meeting in February. The scholarships and recipients were—

- Companion Animal Scholarship: **Jaimi Johnson**
- Food Animal Scholarship: **Matthew Sturos**
- Margaret Pomerory Scholarship: **Casey Rabbe**
- MVMA Foundation/VHA Memorial Scholarship: **Amber Hazel**
- MVMA Leadership Award: **Jaimi Johnson**
- Public Health Award: **Thyra Bierman**
- Spannaus Scholarship: **Paul Syverson**



Amber Hazel



Paul Syverson

Bovine practitioners honor Amber Hazel, Paul Syverson

Two students were honored by the American Association of Bovine Practitioners (AABP) in September: **Paul Syverson**, class of 2013, was awarded the AABP Amstutz Scholarship, which is given to students who have demonstrated outstanding attributes that the AABP believes are important for a successful career as a veterinarian in animal agriculture. **Amber Hazel**, class of 2012, was one of eight veterinary students from across the United States to receive a scholarship and all-expenses-paid trip to the AABP conference from Merck Animal Health.

Morris Animal Foundation supports student research with Veterinary Student Scholar Awards

Morris Animal Foundation's Veterinary Student Scholar (VSS) program grants stipends of up to \$4,000 to veterinary students and graduate students to participate in clinical or basic animal health and/or welfare research. Students in the VSS program began their projects last summer and will present their findings at one of three Morris Animal Foundation meetings in 2012. A total of 81 awards were funded worldwide; five were awarded to students at the University of Minnesota College of Veterinary Medicine.

Kristen Cleary:
Identifying genes that provide insight into equine metabolism

DNA from standardbred and thoroughbred



horses was analyzed to determine whether differences in the coding sequences in these genes affected the horses' locomotion.

Sara Losinski:
Identifying a genetic mutation associated with Achilles' tendon ruptures

Losinski's project looked at six specific areas of altered sequences within the gene CYP1A2 and determined that



they are most likely not associated with Achilles tendon rupture and concurrent use of fluoroquinolones or other potentially related types of medication.

Laura Olsen: **Evaluating behavioral effects of declawing and tendonectomy**

Olson's survey results found evidence that declawing may be associated with biting people and urinating or defecating outside the litter box. Clawed cats may be more likely to fight with familiar cats or be chased by unfamiliar cats.



Mary Wood: **Determining prevalence of alphaherpesvirus in Alaskan caribou**

Wood examined 30 years of blood samples from two Alaskan caribou herds, one of which had been in contact with semidomesticated reindeer, to determine the prevalence and species of alphaherpesviruses in these populations.



Alyssa Ziche: **Determining prevalence of dental disease in dogs**

Ziche's research sought to determine the prevalence of periodontal disease, fractured teeth, and oral pathology in a random population of 1,000 canine patients.



IN MEMORY

Dr. John Arnold

Dr. John Arnold, who earned his Ph.D. at the College in 1956 and was one of the founders of the Minnesota Veterinary Historical Museum, died on February 8 at age 101.

Arnold joined the faculty in 1950, after earning his D.V.M. from Iowa State University College of Veterinary Medicine in 1941 and his M.S. in 1948. During his tenure, he was the chair of the departments of surgery and radiology. He was also one of the College's first "international veterinarians," serving as an advisor to the College of Veterinary Medicine at Seoul National University in South Korea, working as a consultant at the National University in Bogota, Columbia, and hosting visiting professors from Iran in the early 1970s. He was also active in the American Veterinary Medical Association and Minnesota Veterinary Medical Association.

Arnold helped establish the Minnesota Veterinary Historical Museum, which began in the early 1970s when he and a fellow professor, Dr. Henry Griffith, collected items of historical interest within the College and displayed them in a hallway case. After his retirement in 1976, Arnold served as curator of the museum. In 2001, he received the College's Outstanding Service Award for his book, *One Hundred Years of Progress*, and his work as curator of the museum.

Arnold was preceded in death by his wife, Margaret, and is survived by his children, grandchildren, and great grandchildren. Memorials may be made to the Minnesota Veterinary Historical Museum.

Dr. Victor Perman

Dr. Victor Perman, alumnus, friend, and former faculty member, died suddenly on December 11 at age 85.

Perman graduated from the College in 1955, when he began his academic career as an instructor in clinical pathology. He received his Ph.D. degree from the CVM in 1962. Over the course of his career, he served as professor, department chair, and associate dean.

Perman had an international reputation in the field of clinical pathology, giving hundreds of presentations and workshops and leading research projects amounting to over \$2.5 million. His awards included the Norden Distinguished Teacher in Veterinary Medicine, two Gaines "Fido" awards sponsored by the American Animal Hospital Association and American Veterinary Medical Association, and the American Animal Hospital Association's Distinguished Service Award. In 1999, he was elected Distinguished Member of the American College of Veterinary Pathologists. In 2001, he received a lifetime achievement award from the American Society for Veterinary Clinical Pathology for his contributions to veterinary clinical pathology and for developing the use of cytology as a rapid and reliable diagnostic technique.

After his retirement in 1995, Perman was actively involved in alumni relations at the College, encouraging participation in alumni events, motivating the alumni board to recognize the value of supporting the University, and representing the College at class reunions and events. He is survived by his wife, Virginia, their four daughters, and other family members and friends.

Madson and Rademacher among winners of Pfizer '10 under 40' program

CVM alumni **Dr. Darin Madson**, class of 2004, and **Dr. Chris Rademacher**, class of 1998, were among 10 veterinarians recently honored by Pfizer Animal Health's "10 under 40" program. The program honors 10 swine veterinarians under the age of 40 who are making significant contributions to swine medicine. Madson is an assistant professor at Iowa State University Veterinary Diagnostics Laboratory in Ames, Iowa, and Rademacher is director of production improvement at Murphy-Brown Western Operations in Ames.

Judges selected the "10 under 40" veterinarians out of nearly 60 nominees. The award was open to member of the American Association of Swine Veterinarians under age 40 who live in the United States; work in practice, academic, or consulting capacities; and devote at least 60 percent of their time to swine medicine. Winners received a trip to the Allen D. Leman Swine Conference in September.

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/cvmalumninews, e-mail us at cvmalum@umn.edu, or send a note to CVM Alumni Relations, College of Veterinary Medicine, 1365 Gortner Avenue, St. Paul MN 55108.

New Facebook page

Did you know that the College has a new Facebook page devoted to alumni-student interaction? Visit www.facebook.com/pages/University-of-Minnesota-College-of-Veterinary-Medicine-Alumni-Students/167703696668417.



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Support the U and the College of Veterinary Medicine Alumni Society by becoming a member. Your active membership entitles you to exclusive access to dozens of benefits including discounts on cultural activities, gopher apparel, online access to two U of M Libraries databases, and numerous campus activities, including The Raptor Center. And 20% of every new alumni membership comes directly back to CVM, supporting alumni centered events and funding scholarships.

Visit www.MinnesotaAlumni.org/VetMed or call 612-624-9658 to become a member. Use campaign code NP4VM when you join to ensure the CVM benefits from your membership.

Dr. Roy Martin, B.S. '87, D.V.M. '89
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Upcoming Events

Mather Lecture Series

- Small Animal Trauma: Approach to Evaluation, Stabilization, and Improved Outcome, presented by Dr. Kelly Hall: April 5, 7:00-8:30 p.m., 215 Pomeroy Student-Alumni Learning Center
 - Physical Rehabilitation: Safe Return to Work and Play, presented by Dr. Liz LaFond: May 3, 7:00-8:30 p.m., 215 Pomeroy Student-Alumni Learning Center
- Feline Surface Ocular Disease, presented by Dr. Christine Lim: June 7, 7:00-8:30 p.m., 215 Pomeroy Student-Alumni Learning Center

Mather Lectures are also available via simulcast.

For more information and to register, visit www.cvm.umn.edu/vetmedce/events/mather.

White Coat Ceremony

April 22, 1:30 p.m.

North Star Ballroom, St. Paul Student Center

By invitation only

Commencement

May 12, 2 p.m.
Ted Mann Concert Hall
By invitation only

Dean's Spring Reception

May 17
TCF Bank Stadium
By invitation only

Minnesota Dairy Health Conference

May 22-24
Minneapolis Airport Marriott

Nestlé Purina Memories Garden Ceremony and Brick Dedication

August 9
Reception: 6:30 p.m. Program: 7:00 p.m.
Memories Garden, 1988 Fitch Avenue

Allen D. Leman Swine Conference

September 15-18
RiverCentre, St. Paul, Minnesota

For more information about College events, visit www.cvm.umn.edu.

For up-to-date news and information about the College of Veterinary Medicine, visit www.cvm.umn.edu.

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