

...from the DEAN

This is a great time of year! The warmth and rebirth of spring fuel optimism in everyone and create excitement about new opportunities.

It also is a time of culmination—to celebrate our students, faculty, and staff and the many contributions of our donors, who help us to fulfill our mission. For our graduates, it is a time of great beginnings.

This spring, I am—

- Envious of our class of 2017, with their newly received white coats, as they begin an exciting leg of their educational journey with so many wonderful experiences before them.
- In awe of the interconnected world being created by the 350 participants from 30 countries who attended the second International Conference on One Medicine One Science (iCOMOS). They are traveling home with fresh relationships and understanding to confront our challenging world.
- Thankful for the donors who made it possible for the college to award nearly \$580,000 in scholarships to our DVM students.
- Congratulating the 97 students who graduated with DVM degrees, as well as the five students who earned MS degrees, the five who received PhD degrees, and the three who were awarded DVM/MPH degrees.
- Looking forward to opening the new exam rooms in our Veterinary Medical Center. The new lobby opened in early May.

Keeping Minnesota's people and animals healthy is the core of our mission at the College of Veterinary Medicine. In this issue of *Profiles*, we showcase our work throughout Minnesota—from research efforts in avian, fish, and moose populations; to veterinary training in dairy, beef, sheep, goat, and equine practice; to the efforts of our students to provide pet owners in underserved areas with much-needed veterinary care.

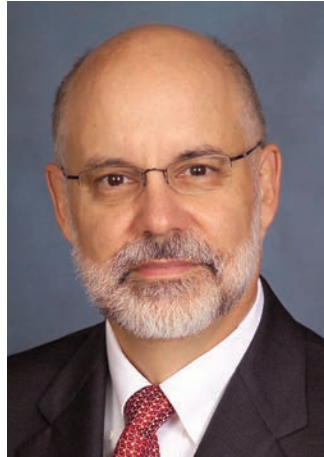
We also share the story of four pets that have benefited from our Oncology Service at the Veterinary Medical Center. In this past year, we have added more clinicians to this critical service, and our new linear accelerator is now offering expanded radiation therapy options for our patients. Oncology clinical services and research remain a vital part of our college's comparative medicine program and one in which we have great pride.

As always, thank you for your continued support of the work we do at the College of Veterinary Medicine. Best wishes for a wonderful spring.

Sincerely,



TREVOR AMES
DEAN



profiles

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The College of Veterinary Medicine

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The CVM's effect on the lives of animals and people every day through educational, research, service, and outreach programs.



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moose and fish populations

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communities in Minneapolis
and northern Minnesota



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VMC Oncology Service provides

OPTIONS & HOPE

While timely diagnosis and treatment can extend the life of most animals, even when the prognosis is poor, an oncologist can help minimize both the patient's and the family's pain.

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Highlights from the College of
Veterinary Medicine

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Upcoming events



GLOBAL REACH

CVM's iCOMOS conference attracts attendees from 30 countries

More than 300 health care professionals, economists, scientists, ethicists, policy experts in health, agriculture, food, and environmental affairs from 30 countries gathered for the second International Conference on One Medicine One Science (iCOMOS) at the University of Minnesota in April. iCOMOS is a global forum to communicate the importance of science in solving health issues at the interface of humans, animals, and the environment; facilitate interdisciplinary, international collaborations embracing health, science, and economics; and inform public policy.



Photo by Sue Kirchoff

University of Minnesota president Eric Kaler joined Dr. Srirama Rao, associate dean for research in the College of Veterinary Medicine, and Dr. Debra Olson, associate dean for global health in the School of Public Health, to greet a group from Thailand's Chiang Mai University at iCOMOS.

CVM hosts OH-SMART workshop

Dr. Katey Pelican, head of the ecosystem health initiative, and her colleagues teamed with the U.S. Department of Agriculture's Animal and Plant Health Inspection Service to cohost a workshop on the One Health Systems Mapping and Analysis Resource Toolkit (OH-SMART) for state and federal agency personnel in December. OH-SMART is a resource for better cross-agency collaboration in fighting infectious disease threats. Representatives of the World Health Organization, Food and Agriculture Organization of the United Nations, U.S. Agency for International Development, Centers for Disease Control and Prevention, and Department of State attended the workshop to see the tool in action and decide whether it fits with some of the work they are doing overseas.

Jerry Torrison appointed director of VDL

The college welcomed Dr. Jerry Torrison as the new director of the Veterinary Diagnostic Laboratory in late March.



Torrison is no stranger to the laboratory, having served as an associate clinical professor and diagnostician from 2004 to 2011. From 2011 to March 2016, he was a swine veterinarian with the research and nutritional services team at Zinpro Corporation, a Minnesota-based manufacturer of organic trace minerals for beef and dairy cattle, swine, poultry, aquatic, equine, and companion animals.

Prior to 2004, he was a swine consultant with Swine Vet Center, PA, in St. Peter, Minnesota, for six years and health assurance manager with PIC, a swine breeding stock company, from 1994-1998.

Announcing the appointment, College of Veterinary Medicine Dean Trevor Ames said, "Jerry has worked in more than 20 countries and consulted with many food animal production corporations. His ability to identify key opportunities locally and globally, along with his strong relationships with state and national producer organizations, industry partners, and government agencies will be a great benefit to the college."

"I look forward to returning to the University and advancing the goals of the Veterinary Diagnostic Laboratory," Torrison says. "The lab is a vital resource with bright, hard-working people, and I'm honored to rejoin them and the broader University community."

Torrison earned his DVM and PhD degrees in veterinary medicine from the University of Minnesota and is a diplomate of the American College of Veterinary Preventive Medicine. He is also a member of the college's Alumni and Friends Society Board.

Senator Al Franken introduces One Health Act

U.S. Senator Al Franken recently introduced legislation that would establish a coordinated national plan to fight diseases that come from animals, including Zika and Ebola. The One Health Act of 2016 would—

- Charge the nation’s agencies—from the Centers for Disease Control and Prevention to the Department of Homeland Security and U.S. Department of Agriculture—to work together on identifying specific goals and priorities to help understand, prevent, and respond to animal disease outbreaks.
- Require federal agencies to create a comprehensive strategy—the National One Health Framework—that will outline ways they can work together to address infectious diseases in animals and the environment in order to prevent spread into human populations.
- Create competitive grant programs to carry out the programs outlined in the framework, spur collaboration between health



programs at the state and local level, and urge international health organizations, like the World Bank and World Health Organization, to increase investments in One Health approaches to global health security.

The Association of American Veterinary Medical Colleges (AAVMC) recently awarded its first President’s Award for Meritorious Service to Franken in recognition of the leadership role he has taken on Capitol Hill in advancing One Health.

“Senator Al Franken is the leading advocate for One Health on Capitol Hill, and he has led efforts to push the Obama administration to develop a One-Health orientation to global health and well-being,” said Dr. Trevor Ames, dean of the college and AAVMC

past president. “There is a need for increased coordination and collaboration between the human, animal, and environmental health sectors at the national level, and Senator Franken has put a much-needed spotlight on this issue. He is working to establish a path forward for One Health.”

A calm spring for turkeys

As *Profiles* went to press, Minnesota had been spared a reoccurrence of an outbreak of a highly pathogenic avian H5 virus that affected nearly nine million turkeys and chickens on 108 Minnesota farms last year. CVM faculty and researchers are collaborating with the Minnesota Board of Animal Health, Minnesota Turkey Growers Association, turkey producers, and Minnesota’s Departments of Agriculture, Health, and Natural Resources on research and biosecurity measures. Researchers at the college continue their efforts to determine causes of the outbreak, conducting wild bird surveillance in a variety of species and environmental testing of biofilms on turkey trough water. The college’s Center for Animal Health and Food Safety conducted a study of 83 turkey farms in Minnesota, resulting in recommendations on planting of crops, tilling of fields, and enhanced biosecurity measures. The expansion of the Minnesota Poultry Testing Laboratory, a satellite lab of the University of Minnesota Veterinary Diagnostic Laboratory, will open this summer in Wilmar.





RESEARCH

Faculty members awarded new research funding

Fighting ovarian cancer with natural killer cells

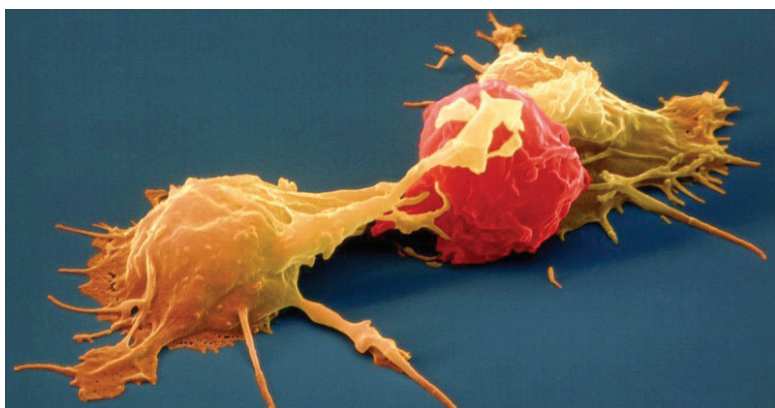
A National Institutes of Health grant awarded to University of Minnesota experts will aid a study for a new immunotherapy that could treat ovarian cancer, the most lethal gynecologic malignancy. The research will be led by Dr. Bruce Walcheck, professor, and Dr. Jimmy Wu, associate professor, both in the Veterinary and Biomedical Sciences department, and Dr. Dan Kaufman, director of the cell therapy program at the University of California-San Diego.

The study will look at a molecule found on the surface of natural killer (NK) cells called CD16a. The researchers will explore how the shedding of this receptor affects NK cells, and how this could influence their ability to kill ovarian cancer cells.

“We’re focusing on ovarian cancer because it’s a type of cancer that has not responded well to immunotherapy,” Walcheck said. “We also believe we can apply this approach to other cancers in the future.”



Bruce Walcheck



Two natural killer cells attack a cancer cell. New research by Dr. Bruce Walcheck is exploring the possible role of natural killer cells in the treatment of ovarian cancer.

Understanding and preventing hemangiosarcoma

The AKC Canine Health Foundation, a nonprofit organization dedicated to preventing, treating, and curing diseases in dogs, announced the funding of research that aims to better understand and prevent hemangiosarcoma, an aggressive form of cancer in dogs.



Jaime Modiano

Dr. Jaime Modiano, professor in the College of Veterinary Medicine and Masonic Cancer Center, will lead a team of researchers on the project, “A Novel Approach for Prevention of Canine Hemangiosarcoma.” The research will pair two novel technologies: a patented test to detect hemangiosarcoma cells in blood samples and a treatment that attacks the cells that establish and maintain the disease.

Three groups whose dogs are affected by hemangiosarcoma—the American Boxer Charitable Foundation, the Golden Retriever Foundation, and the Portuguese Water Dog Foundation—have pledged \$432,000 to support this research effort.

“Hemangiosarcoma is the cause of death for an estimated one out of every five golden retrievers in the United States,” Modiano says. “Portuguese water dogs and boxers also have an especially high risk for this disease.” Hemangiosarcoma is incurable partly because the cancer is detected at a very advanced stage when it is resistant to conventional therapies.

Investigating an emerging disease in turkeys

Dr. Kakambi Nagaraja, professor in the Veterinary and Biomedical Sciences department, was awarded a three-year, \$491,000 grant from the Agriculture and Food Research Initiative (AFRI) Foundational Animal Health and Disease Program for studies on clostridial dermatitis, an emerging condition in turkeys and broiler chickens in the U.S. Birds succumbing to the infection have necrosis of the skin and subcutaneous tissue, usually involving the breast, abdomen, wing, or thigh, and die quickly after being infected. Controlling clostridial dermatitis is difficult because managing the growth of clostridia is challenging, especially during the birds' growth phase.



Kakambi Nagaraja

Finding a cure for HIV

Research by Dr. Pam Skinner, associate professor in the Veterinary and Biomedical Sciences department, on CD8 T-cell immunotherapy to functionally cure HIV (human immunodeficiency virus) will advance with funds from MN-REACH, a joint effort between the University of Minnesota and the National Institutes of Health. As an NIH Research Evaluation and Commercialization Hub, MN-REACH is committed to improving health care by fostering the development and application of therapeutics, preventives, diagnostics, devices, and tools. REACH Hubs provide educational opportunities for innovators as they develop their product, establish novel partnerships within and beyond the University, strengthen existing alliances between stakeholders, and create cultural and systemic changes to more rapidly move from breakthrough innovations to products that will have health, economic, and societal impact.



Pam Skinner

Meanwhile, Skinner's project "Pre-Clinical Development of Anti-HIV Chimeric Antigen Receptors" won funding from the National Institutes of Health Bench-to-Bedside Program, which funds research teams seeking to translate basic scientific findings into therapeutic interventions for patients and to increase understanding of important disease processes.

Minnesota reinstates Rural Veterinarian Loan Forgiveness Program

The state of Minnesota appropriated \$250,000 from the general fund to the commissioner of the Office of Higher Education in fiscal year 2016 for the Minnesota Rural Veterinarian Loan Forgiveness Program. The purpose of the program is to recruit and retain large animal/food animal veterinarians to needed areas and facilities within Minnesota. The Loan Forgiveness Program provides funds for repayment of qualified educational loans for rural veterinarians.



Students awarded degrees at annual commencement ceremony

DVM, DVM/MPH, PhD, and MS degrees were awarded at the college's annual commencement ceremony at Ted Mann Concert Hall on May 7. After remarks by Dr. Rebecca Ropers-Huilman, vice provost for faculty and academic affairs; Dr. Tucker LeBien, associate vice president for research, Academic Health Center; and Dr. Trevor Ames, dean of the College of Veterinary Medicine, the commencement address was presented by Dr. Justine Lee, CEO and founder of VETgirl. Ashley Hall presented the response from the class of 2016. A total of 97 DVM degrees, three DVM/MPH degrees, five PhD degrees, and five MS degrees were awarded.



EQUINE HERO

Hercules honored as Hero Animal of the Year

The Minnesota Veterinary Medical Association recognized Hercules, the Leatherdale Equine Center's longtime blood donor horse, with the Hero Animal of the Year Award at the MVMA's annual Animal Hall of Fame Awards luncheon in February. Veterinary student Zach Loppnow accepted the award on the horse's behalf.



IMPROVEMENTS

Veterinary Medical Center renovations nearly complete

Construction work on the Veterinary Medical Center's renovated small animal reception area and primary and urgent care unit began in January and is scheduled to be completed by the end of June. Exam rooms, a new treatment room, a student rounds room, and offices are being added, and the VMC's main entrance and waiting area are being moved, all in an effort to better meet the needs of VMC patients and support the training and preparation of veterinary students for careers in general practice.



The Leman China Conference welcomed 2,000 participants.

COLLABORATION

College hosts swine and dairy conferences in China

The College of Veterinary Medicine hosted its annual swine and dairy conferences in China. Held in Nanjing, Jiangsu, China, October 11-13, the fourth annual Leman China Swine Conference welcomed 2,000 swine veterinarians, producers, research scientists, and industry experts. More than 100 exhibitors displayed products and services. New this year was the Leman China Scholarship, which was awarded to Shaoyuan Tan, a graduate student who works with Professor Hanchun Yang at China Agricultural University. Shaoyuan is now enrolled in the veterinary medicine graduate program at the University of Minnesota.

The second annual China Dairy Conference convened in Hohhot, Inner Mongolia, China, October 26-28. Dairy experts from the United States and China spoke at the event, which was organized in response to the rapid development of the Chinese dairy industry and the demand for knowledge and solutions to the complex challenges facing dairy production and management in China. The conference drew more than 500 participants and nearly 70 exhibitors.



CVM embarks on new partnership with Seoul National University

University of Minnesota President Eric Kaler and Sriram Rao, CVM associate dean for research, visited Seoul, South Korea, to sign an agreement for a new partnership between the University of Minnesota College of Veterinary Medicine and the Seoul National University College of Veterinary Medicine in November. The agreement provides for the exchange of faculty members and students, as well as joint research activities and conferences.

College mourns two major benefactors

The College of Veterinary Medicine mourned two friends of the college in December.

- Doug Leatherdale, sport horse breeder and former chairman and CEO of the St. Paul Companies, died on his birthday, December 6, at the age of 79. Leatherdale and his wife, Louise, made a major gift that funded the Leatherdale Equine Center.
- Alvin S. Perlman passed away on December 1 at age 86. Longtime clients of the Veterinary Medical Center, Perlman and his wife, June, funded the Perlman Chair in Animal Oncology now held by Dr. Jaime Modiano, professor and director of the Animal Cancer Care and Research program.



The College of Veterinary Medicine

AROUND MINNESOTA

For nearly seven decades, the College of Veterinary Medicine (CVM) has been an anchor on the St. Paul Campus of the University of Minnesota, training the next generation of veterinarians and offering Minnesota residents access to state-of-the-art veterinary care for all types of animals. Nestled in a thriving metropolitan community, the college offers veterinary students the chance to complete their clinical rotations at one of the busiest veterinary hospitals in the country and veterinary scientists the chance to perform cutting-edge research and discover novel treatments and cures. The CVM affects the lives of animals and people every day through educational, research, service, and outreach programs.

From the boreal forests of northern Minnesota to the farmlands of the southwest, the CVM's reach extends throughout the state through collaborative, mutually beneficial partnerships in education, research, and service. The benefits reaped from these partnerships extend beyond the faculty, staff, and students of the college and the patients and clients of the Veterinary Medical Center. Benefits also touch low-income city residents, tribal groups, agribusinesses, biomedical firms, and farmers. On the following pages, you will read more about these growing collaborations.





The Dairy Education Center: a national hub for dairy education

STORY AND PHOTOS BY SUE KIRCHOFF

About 80 miles southwest of the Twin Cities, in rural Nicollet County, veterinary students interested in dairy medicine can find a different sort of classroom, an academic facility staffed by College of Veterinary Medicine (CVM) faculty housed in a large commercial dairy: New Sweden Dairy in Nicollet, Minnesota.

It's the best of both worlds: Students can be in a state-of-the-art classroom one minute, walk down a flight of stairs, and be surrounded by thousands of dairy cows in a bustling dairy operation. In one part of the dairy, a cow may be calving. In another area, a sick cow may be waiting for an exam by a veterinarian. Meanwhile, cows are being milked in a 72-stall rotary parlor and housed in a sand-bedded, cross-ventilated free-stall barn. At the Dairy Education Center, it's all there for veterinary students to see and experience firsthand, in the "real world."

The affiliation between the University of Minnesota College of Veterinary Medicine and Davis Family Dairies began in 2007, when the company announced its intention to design, construct, and operate a new

facility that they envisioned as a unique opportunity to integrate academic and educational functions into a large-scale commercial dairy operation.

In 2007, the college was providing veterinary students with hands-on training in dairy medicine at the Transition Management Facility in Baldwin, Wisconsin, another public-private partnership. But the college was outgrowing that facility, and liked the idea of working with a Minnesota-based dairy. Dr. David Tomsche, class of 1983, heard about the possibility of a new facility being built by Davis Family Dairies and passed the word along to Dr. Trevor Ames, dean, and Dr. John Fetrow, professor of dairy medicine.

The rest is history. The grand opening of New Sweden Dairy and the Dairy Education Center took place two years later, on September 16, 2009. Founding donors included Pfizer Animal Health (now Zoetis), Cambria, Davisco Foods International, Inc., Zinpro Corporation, Diamond V, and AgStar.

It's the best of both worlds: Students can be in a state-of-the-art classroom one minute, walk down a flight of stairs, and be surrounded by thousands of dairy cows in a bustling dairy operation.



"Davis Family Dairies is proud to have our New Sweden Dairy be the impetus of such a wonderful opportunity to collaborate with the University of Minnesota College of Veterinary Medicine and the founding donors," said Mitch Davis, general manager of Davis Family Dairies, at the grand opening. "We believe these efforts will enhance the knowledge of current and future veterinarians as well as industry stakeholders from the United States and around the world."

Standing before a row of cows stretching almost as far as the eye could see, Fetrow looked forward to new horizons in dairy education and extolled the benefits of the public-private partnership.

"I was certain that the facility would change the landscape of how veterinary medicine was taught," he says. Soon after the



The Dairy Education Center's upstairs classrooms overlook the dairy's 72-stall rotary milking parlor – which looks sort of like a merry-go-round, but is the most efficient milking system in the industry. The raised circular platform rotates very slowly, allowing cows to enter and exit the platform at regular intervals. About every seven seconds, a new cow steps aboard. Workers attach the milking machine from below, and the cow is milked in five or six minutes. Each cow is milked three times a day, producing a total of about seven gallons of milk.

center opened, he and Ames set a new goal: for the Dairy Education Center to become a national center for veterinary education and research.

Two years later, the Dairy Education Center achieved that goal, becoming the first National Center of Excellence in Dairy Production Medicine Education for Veterinarians. Like the creation of the Dairy Education Center, this goal was accomplished through teamwork, when the University of Minnesota College of Veterinary Medicine, in collaboration with veterinary schools at the University of Illinois, University of Georgia, and Kansas State University, was awarded a grant from the U.S. Department of Agriculture's National Institute of Food and Agriculture.

“The idea was what this national center would serve veterinary students from across the U.S. and function as a template for future centers,” Fetrow says.

Located at New Sweden Dairy in Nicollet, Minnesota, the Dairy Education Center is an affiliation between Davis Family Dairies and the University of Minnesota College of Veterinary Medicine.



BY THE NUMBERS

4,500

adult cows at New Sweden Dairy

10,000

calvings per year

6,000

heifer calves born per year

73

students have taken the eight-week Dairy Production Medicine course

240

students have taken the two-week clinical training rotation

200

students have taken the two-week rotation in dairy reproductive techniques, reproductive management and lameness

79

continuing education courses have been presented for

1,332

participants

438

public tours have been given for

6,941

people



Students taking part in the Dairy Education Center's two-week and eight-week rotations live at the center, which provides housing for up to 24 students, a fully equipped kitchen, laundry facilities with six washers and dryers, and a downstairs locker room for boots and coveralls. A commons area includes dining tables, couches, and a video projection system.

Veterinary education in a working dairy

With more than 4,500 adult cows housed on-site, the Dairy Education Center offers a unique opportunity for students to practice clinical medicine and gain experience in the day-to-day management of a large dairy. Students can begin learning in the classroom, move to laboratory sessions, and then apply what they learn in the actual dairy. The center's three learning centers, including two classrooms overlooking the rotary parlor and calving pens, can be configured for a variety of educational purposes. Courses are tailored to the audience: students, practicing veterinarians, and other dairy professionals.

Senior veterinary students may participate in one or more specialized rotations in which they live on-site. Taught by experts from across the U.S., the eight-week dairy production medicine course includes lectures, wet-labs, work on-site at the dairy, and working trips to other local dairies. Students are exposed to a valuable

caseload of common transition diseases, such as metritis, milk fever, mastitis, displaced abomasum, and lameness, honing their skills in physical exam, palpation, diagnosis, therapy, surgery, and case management. In addition, the dairy is a complex laboratory for learning reproductive management, nutrition and feeding programs, milk quality, housing, and more.

For fourth-year student Kayla Klehr, the dairy rotation honed her skills so she better understands dairy medicine at different scales of operation.

"Because we live on-site for a lengthy period, we are able to see a variety of things and learn how to care for 20-head to 2,000-head operations," she says. That appeals to Klehr, who hopes to work as a dairy veterinarian for multiple dairies when she finishes her education this spring.

Living in a dormitory setting, students get a 24/7 view of the dairy operation. Housing up to 24 students, the Dairy Education Center dormitory has laundry facilities and a fully equipped kitchen

with four cooking stations. A commons area includes dining tables, couches, and a video projection system. Bookshelves house the center's collection of dairy magazines, books, and videos, and wireless internet and a phone line for local calls are available. A downstairs locker room provides a place to stash boots and coveralls.

In addition to the University of Minnesota, faculty hail from Iowa State University, Kansas State University, the University of Illinois, and the University of Wisconsin, in collaboration with Zoetis, Elanco Animal Health, Zinpro, Diamond V, and other private companies. Students from colleges of veterinary medicine in 10 states have taken the course, as have two veterinarians from the University of Munich, Germany. Frederike Reichmann and Alexander Stoll say that the experience will have a great influence on their careers.

"The theoretical and practical experiences and supervisions of the herd visits were on a very high level," Stoll says. "We appreciated the fantastic education."

The opportunity to work and live at a dairy operation is what most impressed CVM veterinary student Haylee Endress. Endress, who grew up on a beef farm in Illinois, says the Dairy Education Center rotation would benefit any food animal veterinary student.

"It's such a practical way to learn—being able to look at records, nutrition, and herd management—the whole picture," she says.

For Endress, the opportunity to be taught by industry professionals from around the county, have access to guest lecturers, and work with students from other U.S. and European veterinary schools made the experience a big plus.

"We bonded with fellow students and learned what other universities are doing, which was really valuable," she says. "Living in the dorm, we all grew close and began cooking together for what we called family dinners." Endress plans to work with both dairy and beef cattle when she graduates.

Also offered at the Dairy Education Center are two-week clinical training rotations. During this rotation, students participate in identifying, diagnosing, and providing medical, surgical, and obstetrical treatment of sick cows in the dairy. They take part in the daily screening and physical examination of fresh cows



More than 4,500 adult cows are housed at New Sweden Dairy. Each cow has its own RFID (radio frequency identification) tag on her ear, so the dairy's computer knows which cow is in which stall and how much milk she's producing.

(cows that have recently calved), identify and treat sick cows, and perform surgeries and necropsies. They may also help with ongoing health monitoring programs, such as monitoring serum total protein levels in calves or urine pH in dry cows (cows taking a rest from milking in the two months before they give birth).

The center also offers a specialized two-week rotation in which students study topics related to herd reproductive practices and the diagnosis, treatment, and management of reproductive and foot diseases of dairy

cows. Students in this rotation work with Minnesota faculty and the cows at the dairy for hands-on training in reproduction and pregnancy diagnosis and for experience with hoof trimming and lameness prevention.

Student Klehr took this rotation.

“With so many calvings, we were really able to monitor the fresh cows and screen for any changes, including testing for any diseases,” she reports. “Getting this kind of hands-on experience really improved my knowledge and technique with diagnosis, treatment, reproduction, and lameness.”

And the Dairy Education Center doesn't necessarily close on weekends. In recent years, the center has hosted dairy herd evaluation challenges in which students from several veterinary colleges came to the center for a weekend competition in dairy herd evaluation and consulting skills.

A research lab in the Dairy Education Center supports faculty investigations and provides a work space for research sample processing.

“Access to a large population of cows makes it possible to study many different naturally occurring diseases and to develop management systems to improve cow care, welfare, and productivity,” says Fetrow. Several summer projects have been completed by veterinary students, and graduate students have conducted thesis research at the dairy.

Continuing education and public tours

The Dairy Education Center also serves dairy veterinarians, producers, breeders, and others in the dairy industry, offering continuing education programs on a variety of topics, from transition cow management to hoof trimming. In 2014, the center also began hosting weeklong summer courses for high school agriculture educators learning about new curriculum delivery and development. The center's location makes it the ideal base for field trips and on-farm training at neighboring dairies.

The center serves as a public outreach and education hub for information about the dairy industry, wholesome milk production, and the role of modern dairy production systems in food production.



Faculty and staff

College of Veterinary Medicine faculty and staff who work at the Dairy Education Center include:

- Dr. Rafael Bisinotto, dairy reproduction rotation advisor. Research interests: the biology of reproduction and reproductive performance
- Dr. Gerard Cramer, lameness rotation advisor. Research interests: lameness and foot health in dairy cattle
- Dr. John Fetrow, dairy on-farm clinical and dairy production medicine rotation advisor. Research interests: the economics of dairy decision-making, epidemiology of dairy disease, dairy record systems, and standardizing operating protocols, particularly relating to drug use
- Dr. Sandra Godden, dairy on-farm clinical rotation advisor. Research interests: calf health management, mastitis control, Johne's disease control, and transition cow management
- Dr. Erin Royster, dairy production medicine rotation advisor and clinical instructor. Research interests: mastitis, milk quality, and milking equipment
- Dr. Ulrike "Riki" Sorge, dairy on-farm clinical rotation advisor. Research interests: novel infectious disease prevention and control strategies
- Jessica Yost, dairy education coordinator

Additional program faculty include experts from many fields of the dairy industry, including university faculty and extension veterinarians from the University of Minnesota, University of Illinois, Iowa State University, Kansas State University, and the University of Wisconsin; industry representatives from Dupont-Pioneer, Elanco Animal Health, and Zoetis; and private practitioners and consultants.



A newborn calf looks around her new home. Calves are cared for in the nursery at New Sweden until they are two weeks old, then moved to Granby Calf Ranch, a nearby calf-raising facility.

Veterinary students Jessie Ingvalson and Emily Thometz give water and electrolytes to a dehydrated cow by "drenching," which involves passing a tube into the cow's rumen. The students were participating in a two-week clinical rotation at the Dairy Education Center.

The Dairy Education Center hosts at least one or two tours or events per week for audiences such as school groups, boards, civic groups, clubs, government officials, and international visitors.

Today, nearly seven years after the Dairy Education Center's opening, more than 500 veterinary students have taken part in the center's dairy rotations; 1,300 people have taken about 80 continuing education courses; and 7,000 people have taken one of 438 public tours.

"It's been an excellent experience," says Mitch Davis, general manager of Davis Family Dairies. "It's a good example of a public-private partnership that works."

Equine care in the west metro



The University of Minnesota's West Metro Equine Practice provides care to horses in the western suburbs of the Twin Cities, while serving as an ambulatory teaching facility for senior veterinary students. The West Metro veterinary team routinely travels in one of two fully stocked, state-of-the-art ambulatory vehicles to provide barn calls to horses within a 35-mile radius of the practice's offices in Maple Plain, Minnesota.

"We enjoy being part of the larger College of Veterinary Medicine," says Dr. Brady Bergin, head of West Metro. "We have a direct line to CVM specialists who provide additional diagnostics for our patients."

CVM specialists in medicine, surgery, lameness, reproduction, dentistry, ophthalmology, dermatology, imaging, behavior, and other disciplines support the West Metro team. The high-quality equine practice also has access to advanced imaging and treatment options, including digital radiology, ultrasound, endoscopy, and shockwave therapy.

Over the past 12 months, West Metro has visited 127 farms and served 542 patients belonging to 247 clients. Besides being general equine

practitioners, the team offers several areas of interest: Bergin's professional interest is equine lameness; Dr. Kerry Kuhle has special interests in reproductive health and ophthalmology; and Dr. Sara Wefel, a diplomate of the

American Board of Veterinary Practitioners, has a special interest in equine dentistry. All three also provide senior veterinary students a realistic taste of what it is like to work in a hectic ambulatory clinic.

West Metro's two-week rotation is

required for all Equine Track students and offered as an elective to the rest of the senior class. During the Equine Ambulatory rotation, West Metro instructors apply classroom lessons to a clinical setting.

"Being physically located in our practice area makes us more accessible to the horse community at large," says Kuhle. "People often pop into our office to ask questions and get information."

Occasionally, one of the three equine specialists will travel outside of West Metro's regular practice area to see a particularly difficult case or one that requires a direct link to other specialists at the college's on-campus Leatherdale Equine Center.

"We have a direct line to CVM specialists who provide additional diagnostics for our patients."

DR. BRADY BERGIN



Dr. Sara Wefel prepares to do a radiograph of a patient's leg.



Photo by Sue Kirchoff

Some horses are referred to the CVM's Piper Equine Clinic for specialized treatment. As the patient is restrained by certified veterinary technician Melissa Prokop, veterinary ophthalmologist Dr. Michala de Linde Henriksen examines the horse's eye as Dr. Kerry Kuhle looks on.



Studying Grand Portage's moose and fish populations

BY FRAN HOWARD

PHOTOS BY SETH MOORE AND TIFFANY WOLF

Moose researcher Dr. Tiffany Wolf likes nothing better than to watch a 1,000-pound moose lumber away from her—except perhaps to discover a 3-day-old moose calf thriving at its calving site near Lake Superior. Wolf, a CVM research associate, also enjoys designing and monitoring research projects with potential for long-lasting benefits for wildlife, ecosystem health, public health, and native culture.

A growing partnership between the Grand Portage Band of Lake Superior Chippewa and the College of Veterinary Medicine's Ecosystem Health division is looking at adult moose mortality, calf health and mortality, and emerging and unregulated chemicals in water and fish and their effects on health. According to Wolf, conducting ecosystem health research in a tribal setting is a fairly new approach in the United States, and opportunities for this type of research are increasing.

“Our goal is to make Grand Portage a site for ecological and public health research to ensure wildlife populations are preserved,

public health flourishes, and the Grand Portage culture is sustainable,” Wolf says.

Between 2005 and 2013, Minnesota's moose population plunged from an estimated 8,160 animals to 2,760, according to aerial surveys conducted by the Minnesota Department of Natural Resources (DNR). The alarming decline spurred DNR researchers to begin a mortality study in 2013, which involved fitting moose with GPS collars. The GPS transmitters helped researchers find and retrieve the animals when they died, which was intended to help discover the cause of the population decline. Gov. Mark Dayton halted the DNR research in 2015 after researchers lost several adult moose and calves due, in part, to the stress of being captured and collared.

The Grand Portage Band's Department of Biology and Environment, however, has conducted moose mortality studies of its own on the Grand Portage Indian Reservation, located along Lake Superior just south of the Canadian border. Dr. Seth Moore, director of biology and environment for the Grand Portage Band, was finding similar results



An adult moose collared in the first capture season in 2010.



to those of his DNR colleagues: the Grand Portage moose population was declining.

“It was clear in conducting collaring research on live, wild animals that there was inherent risk to the animal from the research itself,” says Moore. “The most logical way to alleviate that small risk and continue our study was to have a veterinarian involved. I specifically wanted to recruit a vet who had been working with a lot of live animals. As a zoo vet who had previously worked with the DNR moose project, Tiffany was the perfect choice.”

Wolf, who at that time was employed by the Minnesota Zoo and a year into a PhD program at the College of Veterinary Medicine (CVM), knew she wanted to dedicate a large portion of her career to research in ecosystem health. When Moore invited Wolf to become involved with his ongoing research on moose mortality in Grand Portage, Wolf had bigger plans.

“Calf survival was a problem—and we were interested in taking a closer look at this—but I said let's not just look at



mortality, let's also look at calf and maternal health together," Wolf recalls. "I wanted to see whether there were associations between maternal health during gestation, neonate health at birth, and calf survival." Moore agreed, and the foundation of the partnership between the Grand Portage Band and the Ecosystem Health division of the college was forged.

"By nature, Tiffany is a researcher. That she is both a researcher and a veterinarian has increased our capabilities," says Moore. "She is able to develop hypotheses and design research projects, all while looking at how a particular study could affect the Grand Portage Band. She is a great catch for us and for the University."

Causes of mortality

Moose are both a flagship and a subsistence species for the Grand Portage Band. In their 1854 treaty with the United States, the Lake Superior Chippewa ceded ownership of their lands in northeastern Minnesota but reserved rights to fish, hunt,

and gather on the five million acres of ceded land. The Grand Portage Band had been taking 15 to 20 moose per year on that land when the population was stable, but in more recent years, the take has dropped to three or four moose—a situation that prompted the band's long-term moose research program.

Preliminary results from the DNR's research, which looked at 47 carcasses of the 179 adult moose that had been captured and collared and died between 2013 and 2015, showed that one-third died from bacterial infections and other unknown health problems and one-third died from parasite infestations. Wolves killed the remaining third, although underlying sickness in 25 percent of these animals made them easy prey.

Results from the Grand Portage studies, which began at about the same time, were similar.

"We have found brainworm in 40 percent of our adult moose mortalities," says Moore. "Deer transmit brainworm to moose, and deer populations are at unprecedented

Top: Wolf about to head out on a "calf capture." The camera on her head will get video of the process as she places a collar on a moose calf and collects health samples.

Bottom: Wolf prepares to examine and collect samples from an adult moose. This moose had been captured as a calf and unintentionally captured again as an adult. "It was really exciting to see that this animal had made it to adulthood and we can now follow her as a young adult," Wolf says.



A captured calf is blindfolded to keep it calm and gently restrained while Wolf collects blood and hair samples and places an ear tag and expandable GPS collar on the calf.

levels. Historically, deer populations have not overlapped with moose populations to the degree they do now.” Predation has been only a small component of adult moose deaths on Grand Portage, about 6 percent, but scavenging of dead moose by wolves on the reservation likely drives the high proportion of moose in the wolf’s diet, about 29 to 50 percent depending on the season.

Moore and Wolf are now looking at how the relationship between deer and moose affects moose mortality with the help of Dr. James Forester, assistant professor in conservation biology at the University of Minnesota. The research team is hoping to

discover whether applying habitat changes that are good for moose, but don’t attract deer, can help reduce moose mortality.

Since 2010, 104 moose have been collared on the reservation, and Moore maintains about 35 active moose collars on reservation lands. An estimated 60 to 70 moose use the Grand Portage Reservation. For the habitat study, Moore and Wolf are starting to capture and collar deer on the reservation to see how much of the land deer use and the degree to which they invade moose habitat.

The process of capturing either a moose or a deer begins in the air when the helicopter crew sets out to locate the animals. Researchers then arrive on snowmobile once they have been notified of an animal’s location. From the time the moose is darted to anesthetize it to the time Wolf gives it the reversal drug to wake the animal, the capture crew spends about 20 minutes collecting blood, fecal, and hair

samples and taking measurements. Wolf closely monitors the moose’s vital signs to ensure it stands up and saunters away. By contrast, the same process takes only five minutes with a deer.

Calf health and susceptibility

Like their parents, moose calves are dying at a faster-than-normal rate. To shed light on why Minnesota moose calves are not thriving, Wolf designed a study to look first at calf health, which requires collecting samples and fitting the calves with GPS collars.

“We know that predation by wolves and bears is taking most calves out,” says Wolf. “But adult moose health has also been compromised. We are starting to see differences across years in calf health. Is this making them more susceptible to predation? It looks like there could be a correlation with adult health.”

To increase the number of calves the team monitors, Wolf began implanting vaginal transmitters in adult moose that

Since 2010, 104 moose have been collared on the reservation, and Moore maintains about 35 active moose collars on reservation lands.

signal when a cow is going to calve. GPS collars also provide a calving signal because a cow’s behavior changes before and during calving, but the new vaginal transmitters provide more accurate timing.

“We go in to collect samples from the calf after bonding has occurred and the calf has nursed,” notes Wolf. “Our goal is to go in about three days after calving. Much longer than that and the calf is big enough to run away from us.”

Because wolves or bears kill some calves before the research team arrives, Dr. Luis Escobar, postdoctoral associate, is matching calving sites with predation events to create a risk map.

“When we have a calf mortality, we spend a lot of time investigating the death,” says Wolf. “We want to know if the calf was killed by a bear or a wolf. Bears can be managed, but wolves, being a protected species, cannot.”

Ecotoxicity and fish

Wolf and other CVM researchers also are helping Moore study subsistence species of fish for the Grand Portage Band, including lake trout. After monitoring mercury levels in lake trout and other species for several years, Moore recently started analyzing water samples and fish tissues for residues of personal care products, commonly used pesticides, and pharmaceutical chemicals to determine which chemicals are present in fish consumed by tribal members.

To date, the research team has found seven chemicals in the water and/or fish tissue samples collected from four locations. DEET has been found in both water and fish samples. Cotinine, iopamidol, metformin, and venlafaxine have been found in fish tissues, and androsterone and hydrocodone have been found in water samples.

“We like to think of Grand Portage as a somewhat pristine site, but it is sandwiched between urban Thunder Bay, Ontario, and the mining region of Minnesota,” says Wolf. “It appears that the normal environmental filtration process is not filtering out some chemicals.”

Wolf is helping Moore design the next phase of the ecotoxicology study as well, which will be funded by the CVM and broadened to include testing of fish and water in 15 water bodies in the Lake Superior watershed. CVM researchers Dr. Dominic Travis and Dr. Nick Phelps; toxicologists from the Minnesota Pollution Control Agency; and Dr. Matteo Convertino from the University of Minnesota School of Public Health are collaborating on the project.



Sheep and goat research in Cannon Falls

This past spring, Dr. Cindy Wolf, CVM assistant professor, had to euthanize Grandma, a 17-year-old failing goat who had lived what might be considered a pampered life.

“Most goats only live to be 10 to 12,” notes Wolf. “Grandma was an extremely valuable research goat. She was truly special.”

Historically, the College of Veterinary Medicine has worked closely with a biotech company in antibody development from sheep and goats.

“Over the years, we have been able to see what a wonderful approach preventive medicine is,” says Wolf, who helped design and implement the research project. She has sourced the company’s goats and sheep and hired and trained facility staff to ensure the farm’s animals remain in tip-top health while leading fourth-year veterinary student rotations to the facility.

The CVM has benefited from the partnership by having a facility where students receive extensive learning experience in small ruminant medicine and preventive disease, and the company has benefited by having a preventive medicine program designed by a small-ruminant expert.

“We have focused on the basics, but sometimes the basics pay off the most,” says Wolf. “And I became a much better teacher as a result.” Senior veterinary students on small ruminant rotations have learned to recognize healthy animals, give epidural anesthesia, perform pregnancy tests, and place catheters, among other skills.



Avian disease surveillance in Willmar

A cooperative venture between the University of Minnesota and the Minnesota Board of Animal Health since the 1960s, the Minnesota Poultry Testing Laboratory (MPTL) is located in Willmar, the center of Minnesota's poultry production region. To better serve the poultry industry, it's undergoing an \$8.4-million expansion to improve its testing capabilities. The expansion, which is expected to be complete this August, will include polymerase chain reaction (PCR) testing and poultry necropsy capabilities.

"The MPTL has not had PCR capabilities, so all testing has been done at the Veterinary Diagnostic Lab on the St. Paul Campus," explains Dr. Stephanie Rossow, faculty advisor for molecular diagnostics at the Veterinary Diagnostic

Laboratory. "The state's investment will help us more quickly accommodate producers and flocks to test for avian influenza and other poultry diseases."

Because large chicken production companies and the vast majority of the state's turkey production—the largest in the country—are located within about a 100-mile radius of Willmar, being able to test for emerging diseases closer to production operations means producers will have a shorter drive to drop off their samples and will learn the results of the PCR test hours sooner. The Veterinary Diagnostic Lab will handle backup or overflow testing and continue to serve operations that are closer to St. Paul than Willmar.

"Our experience with highly pathogenic avian influenza in turkey and chicken flocks

in 2015 provided an incentive to shorten the time between clinical signs and diagnosis," says Dr. Dale Lauer, MPTL director.

The MPTL was originally established to provide surveillance of poultry diseases monitored by the Board of Animal Health, including the state's National Poultry Improvement Plan of the U.S. Department of Agriculture. In time, the MPTL grew to accept samples to test for diseases outside these parameters, becoming a satellite lab of the CVM's Veterinary Diagnostic Laboratory.

In addition to adding PCR and necropsy capabilities, the MPTL is undergoing extensive remodeling, including an addition, and soon will hire technicians and a poultry diagnostician with a background in infectious disease to work with area poultry producers.

"Over time, I expect a mutually beneficial relationship to develop between the lab's expanded services and the industry," Rossow says. "The Board of Animal Health, which shares an office with the MPTL, has a good relationship with area producers, and expanded services will mean better

poultry health and improved poultry production. We will continue to provide a safe and valuable product for consumers and identify current diseases more quickly and understand them better. We will expand our development of vaccines and husbandry practices to reduce these diseases and the industry's reliance on antibiotics."

Overall improvement in Minnesota poultry production also could lead to more jobs while ensuring a safe poultry production system.

"Over the years, as the poultry industry in Minnesota has grown,

the MPTL staff has done their best to keep pace," Lauer says. "The MPTL continues to manage active and diagnostic poultry surveillance programs, document disease trends, develop disease prevention strategies, and conduct poultry diagnostic testing. These programs have successfully detected and dealt with numerous harmful poultry diseases with the cooperation, assistance, and good working relationship with Minnesota's poultry industry."

In the heart of Minnesota's poultry industry

In January 2016, during Indiana's outbreak of avian influenza, Minnesota's 4-year-old laboratory at the Mid-Central Research and Outreach Center (MCROC) received a call. The U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) wanted to know about MCROC's drinker-sampling method used to detect highly pathogenic avian influenza in a turkey barn.

"APHIS came to us and asked for our screening methodology to improve surveillance in the Indiana low-pathogenicity avian influenza outbreak," says avian disease researcher and Pomeroy Endowed Chair Dr. Carol Cardona, a CVM faculty member and director of the MCROC lab. "We developed a surveillance method to sample a large number of birds in a flock rather than targeting a few." The "drinker-sampling method" involves testing an operation's drinkers and allows for early detection of the virus before birds begin to die and when infected birds are likely asymptomatic.

MCROC, a partner and anchor for the MinnWest Technology Campus, a 110-acre collaborative business community in Willmar, Minnesota, opened in 2012 in a renovated, historic three-story building. Today, MCROC houses the college's biosafety level 2 bioscience research laboratory and a regional University Extension Office. It also serves to foster educational partnerships and business development resources.

Cardona's team of five provides custom research services and develops tests based on industry needs to identify novel strains of bacteria and viruses. Cristian Flores Figueroa, Jeannette Munoz Aguayo, and Tony Wertish are the lab's onsite researchers, while Dr. Tim Johnson, the lab's director for research and development, and Cardona have CVM research and extension appointments.

"Today, area veterinarians see the lab as a place to take their research questions so we can design studies to find solutions to issues facing their clients," says Cardona. "We are proud to bring the power of the University to them."

In addition to advancing public-private research collaborations and problem-solving partnerships, MCROC helps strengthen the regional economy while expanding access to University knowledge and resources to benefit the citizens and businesses of a 14-county area in south-central Minnesota.



Carol Cardona



On the farm in Chatfield

On multiple occasions each spring and summer, CVM assistant professor Dr. Timothy Goldsmith brings senior veterinary students focusing on food or mixed-animal practice to his family's integrated beef operation in Chatfield, Minnesota. Goldsmith's family raises 400 cow-calf pairs on 800 acres of pasture and runs a small feedlot to finish out the animals.

Despite the disruption to the farming operation, the Goldsmith farm welcomes students, as they see the value in training future professionals to work in rural Minnesota.

"Because our beef operation is an integrated system—offering the entire live animal production system—it creates a good teaching opportunity," Goldsmith notes. "Students receive exposure to the complete system, which allows them to better understand the impact of management changes or health challenges in one segment of the system—and how that affects the other segments and ultimately benefits farm practices."

The Beef Production System Medicine Cow/Calf Clinical Rotation teaches students technical tasks such as performing breeding soundness exams on bulls and reproductive evaluations on heifers. They also learn the finer points of client communications.

"One of the unique aspects of utilizing my family's herd for rotations is that I am both the client and the producer," says Goldsmith. "Students can practice skills in a low-pressure environment so they become proficient without having to worry. It's a confidence-builder and allows them to step outside their comfort level and ask questions and learn."





Students reach underserved communities in Minneapolis and northern Minnesota

BY FRAN HOWARD
PHOTOS BY SUE KIRCHOFF



On a warm day in early March, Keenan Kemimer and Kuba, an 8-week-old white German shepherd, were first in line, patiently waiting for the doors to open for a VeTouch clinic at Hennepin Avenue United Methodist Church in Minneapolis.

Started in 2008 by a former College of Veterinary Medicine (CVM) faculty member, Veterinary Treatment Outreach for Urban Community Health (VeTouch) provides basic veterinary medical care to pets of Twin Cities residents undergoing financial hardship.

For the past year, Kemimer's doctors had been encouraging him to get a companion animal to help with his anxiety disorder. Kemimer, who sustained an open-head injury during a motorcycle accident 16 years ago, had just had his fifty-fourth surgery.

"I am on a fixed income and very crunched for funds," Kemimer says. "This allows me the opportunity to have a companion animal dog. I am so grateful for this clinic."

More than 170 miles away on the Leech Lake Indian Reservation in northern Minnesota, two Native American youth are preparing to embark on a once-in-a-lifetime journey that will take them to the University of Minnesota Veterinary Medical Center (VMC). Mit Liberty and Jade White will spend a week at the VMC this summer in an observational internship, learning about

careers in veterinary medicine. The 16-year-olds, who volunteered at a recent Student Initiative for Reservation Veterinary Services (SIRVS) clinic, will also attend a VeTouch clinic.

Formed in 2009, SIRVS, another student-driven club, holds veterinary clinics in reservation communities across the state, providing neuter and spay services, wellness exams, vaccinations, heartworm testing, simple diagnostics, and minor surgeries.

"There are 556 tribes in the United States, and only two to our knowledge have an onsite veterinarian," says Marilou Chanrasmi, vice president of the community healing program for the Native America Humane Society. In November, eight Ojibwe youth volunteered at the Leech Lake SIRVS clinic. Liberty and White were so enthusiastic that the CVM developed a one-week internship to expose them and future Native American youth to careers in veterinary medicine.

According to third-year veterinary student and SIRVS president Molly Kubeczko, about 100 veterinary students are active in the club, which holds five or six clinics a year on four reservations: Leech Lake, Lower Sioux, White Earth, and Mille Lacs. Volunteer veterinarians supervise the weekend clinics, which serve an average of



Keenan Kemimer and Kuba were first in line for the VeTouch clinic in March.



Photo by Sue Kirchoff



Clients waited outside Hennepin Avenue United Methodist Church in Minneapolis for the doors to open for a VeTouch clinic.

“We help make the whole community healthier by providing vaccines to animals that would otherwise not receive vaccines.”

KAYLA SAMPLE, VETOUCH PRESIDENT

150 animals each, and help to safeguard public health.

Stray dogs pose both a public safety and public health threat on reservations across the country, notes Chanrasmi. Spay and neuter clinics help reduce the number of stray dogs and cats as well as the number of dog bites.

“We improve public safety and health by vaccinating for rabies, which has been

an issue with unleashed pets and stray dogs,” Kubiczko notes. “There have been cases of rabies in wildlife on some of the reservations.”

Many students who are members of SIRVS are also members of VeTouch, says second-year veterinary student and VeTouch president Kayla Sample. Held on the first Sunday of the month at Hennepin Avenue

United Methodist Church, VeTouch clinics are run on a first-come-first-served basis.

VeTouch is so well-received by the community that students often have to turn people away. To qualify, people must demonstrate that their income is low by having been accepted into a low-income program, such as food stamps or Section 8 housing.

“We open the doors at 3 p.m., and within 20 minutes we close the doors because we have let in as many clients as we have volunteers to serve,” Sample says. “The clinic typically runs until 7 p.m., but we have finished as late as 10 p.m.” During that time, the 20 or so volunteers, including at least one licensed veterinarian, see about 50 clients.

Services provided by VeTouch include wellness exams, vaccinations, heartworm tests, fecal exams, and care for minor problems such as ear infections, upper respiratory problems, and skin conditions.

“Each client leaves with a three-month supply of flea prevention, and if they have a dog, they also leave with heartworm prevention,” Sample notes. Collars, leashes, and baggies stuffed with pet food also are provided to animals in need. The clients, who are served lunch by church volunteers, also leave with a full stomach.

“We have a large impact on the community,” Sample says. “We help make the whole community healthier by providing vaccines to animals that would otherwise not receive vaccines. And being a VeTouch volunteer is a great way for students to see what they can do to benefit people’s lives.” From June 1, 2009, through October 4, 2015, VeTouch served 850 clients, providing health care to 2,281 animals.

“VeTouch brings affordable pet care to a population that is put in a choice situation—I pay rent or I get my dog vaccinations,” says Mary Martin, director of the Dignity Center, a ministry of Hennepin Avenue United Methodist Church. “Individuals experiencing poverty don’t always have a good support system. Their pets are their emotional support.”

VeTouch clinics enable responsible pet owners undergoing difficult times to hold their families together and help prevent overflow at local animal shelters and humane societies.

“When clients are struggling with addiction, housing, emotional, or physical



A client and her pet wait for an exam.



Veterinary students Alex Daniel and Liz Harris examine a dog at a VeTouch clinic.

challenges, they often need the stability and companionship their pet offers,” says Dr. Leslie Sharkey, CVM professor and VeTouch advisor.

The hands-on experience VeTouch and SIRVS student volunteers receive helps them develop the technical and client-communication skills they need to master before graduating.

“VeTouch students also experience working with diverse populations of pet owners and the different situations the pet owners find themselves in,” says Martin. Students working at SIRVS clinics benefit from encountering problems they haven’t seen before—such as dogs coming in covered in porcupine quills.

In 2015, SIRVS president-elect Rachel Johnson organized an event for 100 students, faculty, and staff members at the CVM in which tribal members from the Leech Lake and White Earth bands shared information on the history of their culture and the role of animals in the Anishinaabe culture. Tribal members also provided students with tips on how to serve Native American communities.

“The benefit is mutual,” says Dr. Larissa Minicucci, associate professor and faculty

advisor for SIRVS. “The tribal communities are very appreciative of the partnership we have with them. SIRVS started as a small one-time event that saw 40 animals. Now we are seeing hundreds of animals at each clinic and location, and we have a much broader reach by planting the seed of veterinary medicine as a career option for Native Americans.”

VeTouch also is exploring ways to expand its reach with a possible veterinary clinic at the Phillips Neighborhood Clinic, a free health clinic offered by University of Minnesota health professional students to residents of the Phillips neighborhood in Minneapolis. Not only would this venture provide families in the low-income neighborhood with veterinary care, but it also would expose veterinary students to the more holistic approach of helping various family members understand how environmental factors, such as second-hand smoke, can affect both humans and animals.

Funding for the VeTouch and SIRVS clinics comes from several sources, including student dues, grants, donations from Zoetis and Boehringer Ingelheim, donations from local veterinary clinics and individuals, and fundraising events. Expansion of these critically important programs is possible with additional support. If you’re interested, contact Bill Venne at venne025@umn.edu or 612-625-8480.



Dr. Claire Cannon examines a lymphoma patient in the oncology exam room.

Photo by Sue Kirchoff



Dr. Antonella Borgatti with her patient Copper.



Oncology technician Maureen Parks and Dr. Mike Henson examine a patient.

Photo by Sue Kirchoff

VMC Oncology Service provides

OPTIONS & HOPE

BY FRAN HOWARD

“We are all about options,” says veterinary oncologist Dr. Mike Henson, head of the Veterinary Medical Center’s Oncology Service. “There is no family that we cannot help. We can help them understand what is going on with their friend, help manage symptoms, control most malignancies, and cure many.”

Cancer is one of the most prevalent diseases of companion animals.

“The lifetime risk of dying from cancer is similar for humans and dogs, about one in four,” Henson says. “For cats, it is about one in three. Approximately 50 percent of dogs over 10 years of age will succumb to cancer.” While timely diagnosis and treatment can extend the life of most animals, even when the prognosis is poor, an oncologist can help minimize both the patient’s and the family’s pain.

The VMC Oncology Service is nationally recognized, with four board-certified veterinary oncologists, the only board-certified radiation oncologist in the state, two oncology residents, and six technicians. The Oncology Service offers a full range of diagnostic and therapeutic options for pets with cancer, including surgery, chemotherapy, immunotherapy, and radiation therapy. The VMC also has the highest-quality, most sensitive diagnostic equipment for pets in Minnesota, including a 64-slice spiral CT scanner, 3-Tesla MRI, and onsite nuclear medicine scanning. It is the only veterinary hospital in the state with advanced radiation delivery and safety



Photo by Hened Photography

Liberty has won two agility championship titles since she was diagnosed with cancer.



Photo by Sue Kitchoff

Jim Mihalek and Liberty

equipment and one of only a few in the world offering microwave ablation therapy.

“We almost always have options to improve quality of life for a pet with cancer,” says Henson. “We have a philosophy of care. We focus on quality of life for the pet, tailoring the diagnostic and treatment plan to the needs of the family.”

Some of the Oncology Service’s success stories are remarkable. Here are three of them.

“I wanted to give her this fight. She was still active and happy.”

—JIM MIHALEK

LIBERTY: a true champion

Liberty Mihalek is currently undergoing treatment for chronic lymphocytic leukemia after having battled an inoperable meningioma. While being a two-

time cancer survivor is quite a feat in itself, Liberty has won two agility championship titles since she was diagnosed with cancer.

Born on July 5, 2004, the border collie-blue heeler mix was diagnosed with cancer for the first time in November 2013.

“The whole spring and summer before, I could tell something was wrong,” says Liberty’s owner, Jim Mihalek. During that time, Liberty was under veterinary care and undergoing rehabilitation for performance dogs. “Her symptoms weren’t getting any better, so our vet sent us to the University for an MRI,” he adds.

Liberty suffered from front-end weakness. She would stumble, and her neck was sensitive to the touch. Because of her symptoms, Liberty was first seen by a VMC neurologist, who ordered an MRI to check for a bulging disc.

“I thought it would be surgery, several weeks of rest, and she’d be good to go,” Mihalek recalls. The MRI, however, showed Liberty had a tumor that wrapped around her

spinal cord, so she was referred to the Oncology Service.

It was an inoperable meningioma, but Liberty’s prognosis was good. With treatment, the mean survival time for dogs with this cancer is one to two years. For Mihalek, the decision about whether to treat her was relatively easy.

“She wasn’t really ill,” he says. “I wanted to give her this fight. She was still active and happy.”

Meningiomas are a common type of tumor found in the central nervous system. The primary treatment is surgical removal. For tumors that cannot be removed, radiation is the next best treatment.

“We never definitively diagnosed Liberty’s tumor as a meningioma because a biopsy was too risky,” explains oncologist Dr. Claire Cannon, one of Liberty’s doctors. “We couldn’t remove the tumor surgically, but the way she responded to treatment as well as the location of the tumor pointed to a meningioma. Meningiomas tend to be slowly progressive. If we can treat them, we usually get a good outcome. They are



Janet Skidmore and Java (also known as "The Bean")

nearly always benign. Very rarely do they metastasize.”

Liberty received 22 doses of radiation, given daily Monday through Friday.

“After the first seven treatments, we noticed a big difference,” Mihalek says. “She was much more stable.” She also had less pain, was more active, and had more range of motion in her neck.

In December 2015, during a routine follow-up exam, VMC oncologists discovered that Liberty had chronic lymphocytic leukemia.

“It’s not uncommon for a dog to have two types of cancer,” Cannon explains. “Liberty was recently started on chlorambucil, an oral chemotherapy drug. The treatment is ongoing as long as it is working and tolerated without side effects.” With treatment, half of all dogs with lymphocytic leukemia remain well at two years, and many live out their normal lifespan.

Liberty also receives acupuncture at the VMC to help stimulate her immune system so she can better fight the leukemia. In June, she is scheduled to compete in the Canine

Performance Events Nationals, an agility trial in Springfield.

“I am very grateful for the additional time we’ve had,” says Mihalek.

JAVA: a strong little cat

Java Skidmore is one tough little cat.

“She is going on 13, and given her health problems, I don’t think anyone expected her to live this long,” says Janet Skidmore, Java’s owner. “She only weighs seven pounds, but she still bosses around our two much-larger male cats.”

Ever since she was a year old, Java has suffered from a sore and inflamed mouth, a condition called stomatitis. By the time she was 6, the condition was so severe that Java had to have all of her teeth removed. A few months later, a lesion appeared on her jaw. Java’s vet took a biopsy and referred her to the VMC’s Oncology Service.

“She’s a very cute chocolate-brown cat that I initially saw in early December 2012,” says veterinary oncologist Dr. Antonella Borgatti, one of Java’s doctors. “She

came in with a recent diagnosis of carcinoma on her right lower jaw. The inflammation from her chronic stomatitis possibly led to the tumor.”

Java’s diagnosis: squamous cell carcinoma.

“The median survival for this type of cancer is variable, from two to six months with treatment,” says Borgatti. “It usually is not curable. The tumors tend to grow quickly, and the local disease is more of a problem than spreading. As the tumors grow, cats either can’t eat or the tumors become very painful.”

An estimated 60 percent of oral cancers in cats are squamous cell tumors.

“They can get it anywhere in their mouth, on their tongue, tonsils, or jaw,” Borgatti explains. “This type of cancer is very aggressive, and it is difficult to diagnose early. If not caught early, it erodes into the bone, and surgery is often not an option. Because Java was monitored regularly for stomatitis, the carcinoma was probably caught early.”

The VMC performed surgery to remove the lesion as well as a narrow margin of nearby tissue to be sure all cancer cells were removed.

“She is going on 13 ... I don’t think anyone expected her to live this long, ... but she still bosses around our two much-larger male cats.”

—JANET SKIDMORE

“We then talked about treatment options: radiation, chemotherapy, and an oral anticancer drug called Palladia, which is approved for skin mast cell tumors in dogs but which has also been found to be effective for other tumor types,” says Borgatti.

Skidmore, who has pet insurance on all three of her cats, chose the most convenient treatment option, the once-a-day oral pill.

“The decision was easy for me. It’s cancer. It’s not going to go away,” she

says. “The choice is put the cat to sleep or treat the cancer.”

Java started on oral Palladia in July 2013 and completed treatment in July 2014. A month later, she developed another lesion on her upper left jaw. A complete excision was done, and no follow-up treatment was needed. Then in December 2015, a lesion developed on the inside of Java’s right cheekbone. Luckily, it was benign.

Today Java is doing well.

“She eats whatever she wants—even the crunchy food,” Skidmore says. “The oncology team has been great. Dr. Henson told me that by keeping the inflammation away, we hope to keep the cancer away. I give her anti-inflammatory drugs on an as-needed basis, and I look in her mouth every couple of days. We are also monitoring her blood work, and she goes in for regular checkups.”

SHADOW: touch and go

A retired champion miniature poodle, Shadow was a very sick dog when he first arrived at the VMC in December 2014. The 10-year-old miniature poodle was listless, had stopped eating, and was losing weight.

A diagnostic ultrasound confirmed that Shadow had hepatic lymphoma. While lymphoma is one of the most common cancers in dogs, lymphoma that occurs



Shadow and Meg Spangler. A retired champion miniature poodle, Shadow was treated for hepatic lymphoma.

and in liver failure. I warned his owner that the first treatment could kill him.”

The diagnosis was unexpected. “I was really taken by surprise,” says Meg Spangler, Shadow’s owner. “The day you find out that things are bad, you are distraught. Everyone

hospitalized for a couple of days to receive a heavy dose of chemo. He was then sent home with a nasal feeding tube for about a week to help stabilize him.

“He had to have small meals throughout the day, and he didn’t like it,” Spangler says. “I cried the whole time I fed him. I was so upset. The team at the University held my hand through the process. It was touch-and-go for awhile.”

Over a six-month period, Shadow received 20 chemotherapy treatments. Today, he is in complete remission.

“Every time he has his three-month checkup and gets the all-clear signal, I am so grateful and amazed,” Spangler says. “It’s not a question of if it comes back; it’s a question of when. All of the students, the technicians, everyone was so kind. It was clear they cared about Shadow. They love him almost as much as I do. He’s a momma’s boy, but because he enjoyed being with everyone there, it was easier for me to leave him. I knew I was leaving him with people who cared about him.”

Because many of the VMC’s oncology patients spend the day at the hospital when they receive treatment, they actually learn to like it. “Shadow has quite a fan club here,”

“The veterinary oncology approach is different than the human approach. Cats and dogs tend to see fewer side effects than people. Many cancers are also very treatable.”

- DR. ANTONELLA BORGATTI

primarily in the liver is uncommon. Furthermore, primary liver lymphoma carries a much poorer prognosis than the more common multicentric form of lymphoma. The average survival time for primary hepatic lymphoma is about two months.

“It was a fairly guarded prognosis. It is common to see lymphomas in dogs but less common to see it affecting the liver,” says veterinary oncologist Dr. Jillian Zientek, one of Shadow’s doctors. “Shadow was jaundiced

was so helpful, and they got me through that. As I reflect back on the situation, he was a pretty sick guy.”

Shadow was hospitalized, and the next day he began a course of chemotherapy. A few weeks into treatment, Shadow had a setback.

“There was a point when I was supposed to administer chemo at home, but I couldn’t get him to take the pills,” says Spangler. “When he turned his nose up at steak, I knew we were in trouble.” Shadow was again

says Zientek. “We get to know our patients very well.”

Of course, not everyone decides to treat a pet for cancer. Some cancers are so aggressive, some pets are diagnosed at such an advanced age, or some treatments can be so costly that palliative care, hospice, and euthanasia are often chosen. Some people also are reluctant to choose treatment due to their own negative experiences with cancer in someone they loved.

“The veterinary oncology approach is different than the human approach,” Borgatti notes. “Cats and dogs tend to see fewer side effects than people. Many cancers are also very treatable.”

“My approach is to talk about a number of options, from the most aggressive forms of treatment to hospice care,” says Zientek. “I lay out the potential benefits, risks, and cost, and I leave it up the clients to determine what is most appropriate for their pets.”

Would you like to support the Veterinary Medical Center’s Oncology Service or fund research in veterinary oncology?

For more information, contact Andrea Fahrenkrug at 612-626-6501 or afahren@umn.edu.

Cancer strikes home for veterinary oncologist



Photo by Sue Kimbrell

Brian Husbunds and Tex

BY FRAN HOWARD

Last June, VMC veterinary oncologist Dr. Brian Husbunds was enjoying an off-duty Sunday afternoon doing what he typically does when he’s not working—playing ball with Tex, his blue heeler. After the throw-and-fetch session, 11-year-old Tex settled in near Husbunds, who was soon to find out what it feels like to be one of his clients.

“I had just mowed the lawn, and we had just finished playing ball,” says Husbunds. “I put my arm around Tex, and I felt a big lump on his right shoulder. It was about four inches in diameter.”

Six weeks earlier, Husbunds had done a thorough exam on Tex, including a complete blood panel, and all of the tests came back normal.

“It happened so quickly,” says Husbunds, who knew almost immediately that Tex had a form of cancer called lymphoma. “I started to feel his other lymph nodes. All of them and his spleen were quite large.” That night, Husbunds took Tex to work to perform a diagnostic needle biopsy to confirm his suspicions.

“I sent an image of the slide to two of my colleagues just to make sure,” he says.

“I heard back from one that night and the other the next morning. Both confirmed my diagnosis.”

The next day, Tex began chemotherapy treatment with a cocktail of drugs, and within 10 days, Husbunds’ dog was in remission.

“He tolerated therapy quite well,” Husbunds says. After six months and 25 chemotherapy treatments, Tex completed treatment.

“He had no other health problems, and because of what I do every day and what I see every day, I had no reservations about treating him,” Husbunds says. “We are really close. He sleeps in my bed.”

Husbunds also was aware that 80 to 90 percent of dogs with lymphoma, if treated early, will respond to chemotherapy within one to three weeks.

“Tex is a rock star. He is in remission. His cancer is controlled,” says Husbunds.

Remission for lymphoma usually lasts from 10 to 12 months, and about 25 percent of dogs are still in remission two years after treatment.

FACULTY & STAFF news

The University of Minnesota has named **Dr. Meggan Craft**, assistant professor in the Veterinary Population Medicine department, a 2016-18 McKnight Land-Grant Professor.



Photo by Liam James Doyle

McKnight Land-Grant Professorships advance the careers of new assistant professors at a crucial point in their professional lives. Craft's research focuses on understanding and controlling the spread of disease within and between animal populations, integrating field-based empirical data with theoretical models to devise more effective disease control strategies. This research has beneficial applications for animals of conservation concern, domestic animals, food security, and public health.

Dr. Liz Pluhar, professor in the Veterinary Clinical Sciences department, and Dr. Mike Olin, assistant professor in the Department of Pediatrics in the Medical School, were recently awarded \$100,000 from the Humor to Fight the Tumor Foundation to continue their research on brain tumors in dogs. Humor to Fight the Tumor is a Minnesota-based fundraising event that provides funds for brain tumor research.



Dr. Liz Pluhar and patient

Dr. Felipe F. Avilia, postdoctoral associate in the Veterinary Population Medicine Department, received a grant from the Morris Animal Foundation for research on possible genes associated with equine metabolic syndrome in five horse breeds: Arabian, Morgan, quarter horse, Tennessee

walking horse, and Welsh pony. Equine metabolic syndrome is a metabolic and hormonal disorder in horses characterized by insulin resistance, obesity, and susceptibility to laminitis.

Dr. Al Beitz became the new director of the University of Minnesota Center for Educational Innovation (CEI) on May 1. Beitz, a professor and former chair of the Veterinary and Biomedical Sciences department, will split his time between the CEI and the college. He is a member of the University's Academy of Distinguished Teachers, recognized in 2010 with the University-wide award for outstanding contributions to post-baccalaureate, graduate, and professional education.



The Minnesota Veterinary Medical Association (MVMA) presented **Dr. John Fetrow**, professor in the Veterinary Population Medicine department, with the Outstanding Faculty Award at the MVMA annual business meeting in February. The Outstanding Faculty Award is given to a CVM faculty member who provides outstanding service to Minnesota veterinarians; gives their time and talent to the veterinary profession; is a leader who makes a difference to the profession; and is a dedicated contributor to organized veterinary medicine.



Dr. Jim Collins, who is on sabbatical after serving as director of the Veterinary Diagnostic Laboratory for 17 years, was honored with the 2016 Minnesota Pork Board Distinguished Service Award at the Minnesota Pork Board annual meeting in January.



Postdoctoral associates **Luis E. Escobar** and **Nicholas Fountain-Jones** and research associate **Tiffany M. Wolf** were awarded Institute on the Environment Mini Grants. Escobar's project focuses on disease modeling in aquatic systems, while Fountain-Jones's project studies anthropogenic impacts on avian influenza. Wolf is studying the zoonotic risk of echinococcosis, a parasitic disease caused by infection with tiny tapeworms, for a northern Minnesota tribal community.

Dr. Daniel Heinrich, clinical pathology resident in the Veterinary Clinical Sciences department, was awarded the American Society for Veterinary Clinical Pathology Young Investigator Award for his research project, "Evaluation of the Cell Block Method in the Diagnosis of Canine Peripheral Lymphadenopathy and the Immunophenotyping of Canine Lymphoma." Daniel's faculty mentors on the project were **Dr. Jed Overmann** and **Dr. Davis Seelig**.

Dr. Karen Lopez, veterinary public health and preventive medicine resident in the Center for Animal Health and Food Safety, and **Dr. Sylvia Wanzala**, postdoctoral associate and MnDRIVE fellow in the Veterinary Population Medicine department, won awards in the Global Health Day poster competition in November. Lopez was recognized for her research poster "Fishy Business: Economically Motivated Adulteration of Fish in Minnesota Retail Markets." Wanzala received a runner-up award for her poster, "Improved Diagnostics of Mycobacterium Tuberculosis Complex Infections in Minnesota White-Tailed Deer."

Dr. Andres M. Perez, endowed chair of global animal health and food safety in the Veterinary Population Medicine department, is editor-in-chief of the veterinary epidemiology and economics section of the new journal *Frontiers in Veterinary Science*.





Nona Nesselth from Boehringer Ingelheim, far left; Dr. Brittney Brock, Minnesota Veterinary Medical Foundation board chair, second from left; and Dr. Jennifer Blair from the scholarship committee, third from left, joined the scholarship recipients for a group photo at the MVMA business meeting.

Eleven students were awarded scholarships at the Minnesota Veterinary Medical Association’s annual business meeting on February 5.

- Academy Pomeroy Scholarship—Jonathan Clayton
- Arrowhead Scholarship—Anastasia Johns
- Dr. Tom Bloom Scholarship—Daniel Wingert
- Companion Animal Scholarship—Daniel Wingert
- Food Animal Scholarship—Ashley Swenson
- James O. Hanson Scholarship—Dr. Amalie DiMiceli
- Margaret Pomeroy Scholarship—Kristin Savaryn
- MVMA Leadership Scholarship—Roland Lefebvre
- MVMF Cares Scholarship—Marjorie Schleper
- Public Health Scholarship—David Moe
- Spannaus Scholarship—Helen Sobczynski
- VHA Scholarship—Carrie Howe

Veterinary student **Zach Loppnow** accepted the Hero Animal of the Year Award on behalf of Hercules, the Equine Center’s blood donor horse, at the Minnesota Veterinary Medical Association’s Animal Awards luncheon on February 6. Hercules is now a member of the MVMA’s Animal Hall of Fame.



Eleven University of Minnesota veterinary students—**Myranda Beckmann, Eduardo Benjamin, Ariel Carlson, Jamie Dean, Elise Sanchez, Jasmine Sarvi, Alexandria Schauer, Mikayla Schroeder, Brian**

Stampfl, Nicole Sylvestre, and Linnea Thraen—were awarded Zoetis Veterinary Student Scholarships at the SAVMA (Student American Veterinary Medical Association) Symposium at Iowa State University in Ames, Iowa, in March. The Zoetis scholarship program received nearly 1,500 applications from second- and third-year students at colleges of veterinary medicine in the U.S. and the Caribbean this year. From those applications, 353 recipients were selected for the award and will receive a total of more than \$700,000 in scholarships.

Patrice Witschen, veterinary student and professional school fellow, has received an award for an additional year as a Howard

Hughes Medical Institute (HHMI) medical research fellow. Patrice’s primary mentor is Kaylee Schwertfeger, PhD, associate professor in the University’s Department of Laboratory Medicine and Pathology. Witschen, who will graduate with the class of 2018, is only the second veterinary student to get a renewal fellowship from HHMI. (The first was Katie Anderson, also from the University of Minnesota.)



Alyssa Anderson, class of 2018, was one of five students from around the nation awarded an American Association of Swine Veterinarians-Merck Animal Health Veterinary Student Scholarship at the American Association of Swine Veterinarians annual meeting.



Dr. Elaine Norton, a student in the comparative and molecular biosciences graduate program, received the Storm Cat Career development Award from the Grayson-Jockey Research Foundation, which is presented to an early stage scientist with an interest in equine research. A PhD candidate with Dr. Molly McCue, Norton is studying the genetic basis for equine metabolic syndrome, an insulin-resistance disease.



Four CVM students received grants from the University’s Consortium on Law and Values in Health, Environment, and the Life Sciences in March:

- **Dr. Michael Mahero**, first-year PhD student, was awarded a grant for his project, “Food Security, Livelihoods, and Household Health in Protected Mountain Environments of the Albertine Rift.”
- **Marissa Milstein**, a second-year DVM student, received a grant for her project, “A Mixed-Methods Study of Bushmeat Hunting and Zoonotic Disease Risk Among Indigenous Waiwai in the Konashen Community-Owned Conservation Area, Guyana”

STUDENT news

(continued)

- **George Omondi**, a first-year PhD student, was awarded a grant for “Optimizing Novel Diagnostic Protocols for Management of Tuberculosis in a Community-Driven Chimpanzee Sanctuary in Africa: Mitigating Disease Transmission Between Great Apes and Humans.”
- **Sara Sokolik**, a second-year DVM student, received a grant for her project, “Understanding the Zoonotic Risk of Echinococcosis for a Northern Minnesota Tribal Community.”

The University of Minnesota Graduate School awarded the Alexander & Lydia Anderson Grant for summer research to **Dr. Irene Bueno**, a student in the veterinary medicine graduate program. Bueno’s advisers are Dr. Randy Singer and Dr. Dominic Travis.



Lindsey Harper, class of 2018, won an award for her poster presentation at the American College of Veterinary Pathologists meeting in Minneapolis, Minnesota, in October. Harper’s topic was “Effect of Meniscal Coverage of Articular Cartilage on Severity of Surgically Induced Osteoarthritis.”



Abstracts by **Dr. Derek Korpela**, a student in the comparative and molecular biosciences graduate program, and **Patrice Witschen**, class of 2016, were among the top 10 abstracts submitted to the Sixth Annual Masonic Cancer Center Research Symposium in Minneapolis, Minnesota, in November.



Dr. Dane Tatarniuk, a student in the veterinary medicine graduate program, won two awards for his research presentation at the American College of Veterinary Surgeons Surgery Summit in Nashville, Tennessee, in October. Tatarniuk’s adviser is Dr. Troy Trumble.

ALUMNI news

Alumni honored at MVMA meeting

Six CVM alumni took center stage to receive awards at the annual Minnesota Veterinary Medical Association business meeting in February:

- Dr. John Baillie, class of 1972, was presented with the Veterinarian of the Year Award.
- Dr. Ginger Garlie, class of 1985, was named the new president of the MVMA.
- Dr. Roger Howe, class of 1977, was recognized with the Distinguished Veterinary Service Award.
- Dr. Roger Madison, class of 1966, received the President’s Award.
- Dr. Jennifer Schurrer, class of 2006, was recognized with the Emerging Leader Award.
- Dr. Karen Shenoy, class of 2004, received the Outstanding Industry Representative Award.



Dr. John Baillie received the Veterinarian of the Year Award from the Minnesota Veterinary Medical Association in February.

Class notes

1950s

Dr. Stanley Diesch, class of 1956, who was awarded the Siehl Prize in Agriculture in 2015, donated \$15,000 of the Siehl Prize award to the college’s Veterinary Pioneers in Public Health Research Fund. Diesch was one of the veterinary pioneers for whom the research fund was named.



1960s

Dr. Russell Currier, class of 1967, received the Iowa Public Health Heroes Award from the University of Iowa College of Public Health in November. Currier’s career has spanned advocacy, research, epidemiology, disease prevention, and health promotion. During his 29-year tenure in the Iowa Department of Public Health, he pioneered community health needs assessment and health



improvement planning, traveling the state to deliver technical assistance on community health needs assessment and prevention initiatives. As executive vice president of the American College of Veterinary Preventive Medicine, he is responsible for credentialing veterinarians in public health, preventive medicine, and epidemiology.

1970s

Dr. Jagjit Brar, MS 1979, has been reappointed by Illinois Governor Bruce Rauner to a four-term on the Illinois Veterinarian Licensing and Disciplinary Board. Brar is a past president, vice president, and secretary of the Chicago Veterinary Medical Association.



Dr. Paul Gambardella, MS 1977, is the new hospital director at Oradell Animal Hospital in Paramus, New Jersey.

Dr. Bill Hartmann, class of 1978, announced plans to retire from the state Board of Animal Health in June after 27 years—15 years as state veterinarian.

Dr. Laurel A. Kaddatz, class of 1977, received the Distinguished Life Service Award from the New York State Veterinary Medical Society in October. After practicing in Rochester, New York, for 25 years, Kaddatz became hospital director and co-owner of Pound Ridge



Veterinary Center in Pound Ridge, New York, in 2003. Active in veterinary medicine organizations at many levels, he has been named a Westchester County TopVet multiple times.

Dr. Eileen Thacker, class of 1978, is the new director of the U.S. National Poultry Research Center in Athens, Georgia.



1980s

The American Association of Swine Veterinarians (AASV)

presented **Dr. Scott Dee**, class of 1987, MS 1985, PhD 1996, and former CVM faculty member, with the Howard Dunne Memorial Award at the AASV annual meeting in New Orleans. The annual award is given to an AASV member who has made a significant contribution and rendered outstanding service to the AASV and the swine industry. Dee was recently featured in “Detective Veterinarian Pursues Mysterious Globe-Trotting Virus,” on KCUR, the NPR station operated by the University of Missouri-Kansas City.



Dr. Peixuan Guo, PhD 1987, is the Sylvan G. Frank Endowed Chair in Pharmaceutics and Drug Delivery Systems at Ohio State University.

Dr. Dale Lauer, class of 1981 and director of the Minnesota Poultry Testing Laboratory in Willmar, Minnesota, received the Willmar Area Lakes Chamber of Commerce Exemplary Leadership Award



at the chamber’s annual meeting and appreciation lunch in February. The award goes to a person who has achieved recognition in their chosen field and made significant contributions to it; Lauer was honored for his response during last year’s outbreak of highly pathogenic avian influenza.

Dr. Debra Nook, class of 1985, now lives in Sidney, Australia, and owns two practices.

Dr. Herbert Rebhan, class of 1984, has published “All Things Strange and Wonderful: My Adventures as a Vet in Africa,” a book about his experience as a Peace Corps volunteer in Malawi in the late 1980s.

The book is now available as an e-book; a paperback edition will be available in the U.S. in June. Rebhan now works in Australia as a veterinary officer in live animal export for the Federal Department of Agriculture.



1990s

Dr. Nicole Eller, class of 1999, is now a field shelter veterinarian for the American Society for the Prevention of Cruelty to Animals.



2000s

Geoff Hirsch, MS 2008 (with Dr. Mike Murtaugh), is a scientist at Evolutionary Genomics in Denver, Colorado.

Dr. Laura (Eikmeier) Janke, DVM/PhD 2004 (with Dr. Al Beitz) is a faculty member and pathologist at St.



Jude Children’s Research Hospital in Memphis, Tennessee. She recently presented a seminar on steroid-induced osteonecrosis as part of the college’s Research Seminar Series.

Dr. Beth Thompson, class of 2007, is the new state veterinarian and executive director of the Minnesota Board of Animal Health, succeeding Dr. Bill Hartmann, class of 1978.



Thompson was previously an assistant director at the board, where she primarily oversaw the swine and emergency planning operations. After earning her DVM and swine medicine certification from the CVM in 2007, she spent more than a year as a swine production system veterinarian for Holden Farms in Northfield, Minnesota. She also holds a JD degree from the William Mitchell College of Law.

Laurie Yunker, MS 2003, is principal research and development scientist at AtriCure Inc., a Minnetonka, Minnesota-based medical device company.

2010s

Dr. Seth Baker, MS 2011 (with Dr. Scott Dee) is now an attending veterinarian at North American Science Associates, a medical research organization. Baker recently presented his perspective on conducting animal research in a commercial setting to students in the CVM’s graduate Ethical Conduct of Animal Research course.

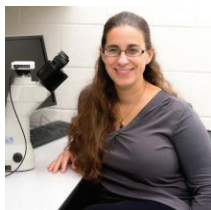
Dr. Alexandra Draper, MS 2013 (with Dr. Stephanie Valberg), won the University of Minnesota Distinguished Master’s Thesis Award in the Biological/Life Sciences for her thesis, “Pelvic Limb Movement Disorders in Horses.” Her work was nominated for the 2016 Midwest Association of Graduate Schools’ Distinguished Master’s Thesis Award in the Biological/Life Sciences. Draper is pursuing a PhD at the Royal Veterinary College in London.

Dr. Nikko Grossapoulos, class of 2015, has joined Minnehaha Animal Hospital in south Minneapolis. “Dr. G” divides his time between that clinic and its sister clinic, Pet Doctors.

Dr. Ting Lei, PhD 2012 (with Dr. Yinduo Ji) is assistant vice president of diagnostic services for Chia Tai Animal Husbandry in Beijing, China.

Dr. Daniel Linhares, PhD 2013 (with Dr. Montse Torremorell) is now an assistant professor in the Department of Veterinary Diagnostic and Production Animal Medicine at Iowa State University College of Veterinary Medicine.

Dr. Jane Marie Manfredi, MS 2012 (with Dr. Troy Trumble), was named the 2015 EQUUS Foundation Research Fellow at the American Association of Equine Practitioners convention in December, and is now a diplomate of both the American College of Veterinary Surgeons and the American College of Veterinary Sports Medicine and Rehabilitation (Equine). A PhD student at Michigan State University College of Veterinary Medicine, Manfredi is investigating equine metabolic syndrome and the biologic differences in muscle and adipose tissues in different breeds of horses.



UPCOMING CLASS REUNIONS

- Class of 1961: September 23
- Class of 1966: October 21-22
- Class of 1976: August 13
- Class of 1996: August 20
- Class of 2011: September 24

Would you like help planning a CVM class reunion? Contact Bill Venne, director of development, at venne025@umn.edu or 612-625-8480.

Dr. Jolene Tourville, class of 2013, is now staff veterinarian at Jennie-O Turkey Store in Barron, Wisconsin.

Dr. Steve Tousignant, PhD 2015 (with Dr. Bob Morrison) is a veterinarian at the Swine Veterinary Center in St. Peter, Minnesota. He recently visited the college and presented a seminar on Seneca Valley virus shedding.

In memory

Dr. Robert Terrence Boschert, class of 1960, died on November 24. A longtime resident of Lakeville, Minnesota, he was an outdoor enthusiast, athlete, and history buff, as well as a dedicated and compassionate veterinarian.

Dr. Donna den Boer, class of 1961, died peacefully on January 27. She was proud to be one of the earliest women graduates from University of Minnesota College of Veterinary Medicine. Working out of her home in Minneapolis, Minnesota, she cared for any animal brought to her, often at no charge. She had a heart for the underdog, animal and human.

Dr. Roger David Fortney, class of 1960, passed away on October 18 in Madison, Wisconsin. A pilot as well as a veterinarian, he retired from Northwest Airlines in 1990 and from Class Biologically Clean, his veterinary business, in 1998.

Dr. Mylo M. Hagberg, class of 1961, died suddenly in Faribault, Minnesota, on February 8. In addition to his work as a veterinarian, Hagberg had a 30-year military career, retiring from the U.S. Army in 1986.

Dr. Maurice M. Hanify, class of 1958, died at home on October 17 after a short illness. He was 95. After graduation, Maurice moved to Sturgis, South Dakota, where he worked with Dr. John Chamley for one year. He then moved to Belle Fourche, South Dakota, and worked with Dr. R. M. Buck before purchasing the Sturgis Veterinary Hospital in 1966. He later established Hanify Veterinary Clinic in Belle Fourche, conducting business there until

2009. Starting in 1969, he was the track veterinarian for parimutuel horse racing at the Roundup grounds in Belle Fourche. Over his career, he served as the veterinarian for the Sturgis Livestock Exchange, St. Onge Livestock, and the Belle Fourche Livestock Exchange.

Dr. Georgene J. Holasek, class of 1982, died on October 18 in Minneapolis, Minnesota. Holasek ran a private practice in equine veterinary medicine, caring for her own and many clients' horses. She owned and operated an Arabian horse breeding operation for more than 40 years, raising world-class Arabians.

Dr. I. Leland Thal, class of 1954, died on February 11. "Doc" Leland Thal developed his love for animals with his first dog, Spot, and raising geese and ducks in his native Bismarck, North Dakota. After graduating from the CVM, Leland became a veterinarian for large and small animals and ran a beef cattle farm. In 1976, he purchased the former Watertown Medical Clinic in Watertown, Minnesota, and converted it to the Watertown Veterinary Clinic. After retiring from his full-time veterinary business, Leland ran his polled Hereford farm for many years.

Alumni and Friends Society Board

Christopher Anderson, president

MaryJo Baarsch

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Theresa Hershey

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Roy Martin

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Susan Miller

Jack Risdahl

Anna Ruelle

Karen Shenoy

Jerry Torrison

Lara Stephens-Brown, student member

Lucy Tongen, student member

Spotlight on
KELLY TISHER
class of 1994



Dr. Kelly Tisher, class of 1994, is president of Littleton Equine Medical Center in Littleton, Colorado. He began his career as an associate veterinarian and became the practice's president in 2010.

A 24/7 surgical facility and hospital, Littleton Equine Medical Center includes 20 veterinarians. The core business is sports medicine, but also includes reproduction and medical imaging.

Growing up on a beef cattle ranch in South Dakota, Tisher inherited his love of horses from his grandfather.

"He taught me to drive teams of horses when I was a kid, which was such a fun way to grow up," Tisher says.

Originally, Tisher planned to study engineering, but changed his course to animal science and veterinary medicine. At the University of Minnesota, his interest was always in large animal medicine, but he appreciated the variety in a CVM education.

"I like the concept of an all-species approach that is varied and well-rounded, where you can develop skills for the rest of your life," he says.

His favorite memories of his time at the college?

"I'll never forget my first anatomy lab and preparing myself for that day!" he says. "A visit to a feed lot practice in Calgary with Dr. Trevor Ames also was an unforgettable trip!"

He also appreciated the service aspects of a Minnesota CVM education.

"You can't just love animals," Tisher says. "At the end of the day, we are in the people business."

SHARE YOUR NEWS

Send your Alumni Class Notes using the online form at www.cvm.umn.edu/alumni/update or e-mail Bill Venne, director of development, at venne025@umn.edu.

Or send your news by mail using the form below (attach additional pages of necessary) to:

Alumni Relations, College of Veterinary Medicine, 1365 Gortner Avenue, St. Paul, MN 55108.

Name: _____

Address: _____

City, State, Zip: _____

Phone: _____

E-mail: _____

Graduation year: _____

Employer: _____

Title: _____

Alumni Class Notes news:

Death announcement (name and class year, place and date of death):

Mindy Means, Martin Moen join advancement team

Mindy Means joined the CVM in January as development officer, corporate and foundation relations. She serves as the college's primary liaison for corporate and foundation giving, working with faculty in the Veterinary Population Medicine and Veterinary and Biomedical Sciences departments, supporting the development efforts of the Center for Animal Health and Food Safety and graduate programs, and assisting in fundraising for the Leatherdale Equine Center. Means has spent most of her career in the Twin Cities area, developing



public-private partnerships for higher education through executive education and fundraising.

Martin Moen joined the college as director of advancement in April. Working in partnership with Bill Venne, director of development, Moen will lead efforts to enhance the college's communications, marketing, and external relations activities as the University of Minnesota plans for its largest fundraising campaign ever. Moen brings more than 25 years of communications and administrative leadership experience from previous positions with the Bell Museum of Natural History,



College of Food, Agricultural and Natural Resource Sciences, College of Natural Resources, and Minnesota Extension Service.

Scholarships awarded at spring scholarship reception

Eighty-eight students were awarded nearly \$400,000 in scholarships at the college's annual spring scholarship reception on April 13. Steve Olson, executive director of the Minnesota Turkey Growers Association, received the college's Outstanding Service Award. The college will award 76 scholarships totaling nearly \$600,000 this year.

VMC's care of beloved dogs inspires generous estate gift

Mr. and Mrs. Nelson first visited the University of Minnesota Veterinary Medical Center (VMC) in 1994.

"We had just adopted Lilly and brought her in for a checkup," Mrs. Nelson says. "And we've been coming here ever since."

A few years later, the Nelsons contacted the University of Minnesota Foundation to discuss leaving part of their estate to the VMC. Having no children, the Nelsons told the college's development team that they felt it was important to make sure their money went where it could do the most good in an area important to them. In addition to working on their estate plans, the Nelsons began making annual gifts to the VMC.

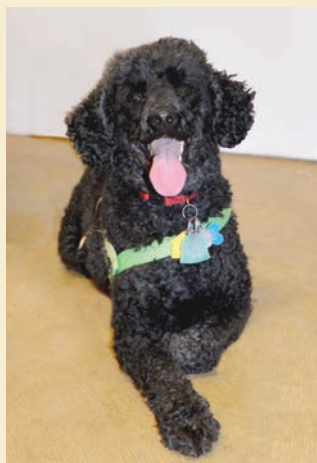


Photo by Sue Kirchoff

Jenny, one of the dogs that inspired the new LilJen Shelter Medicine Fund at the College of Veterinary Medicine, visited the Veterinary Medical Center for a checkup in April.

"There's never too small a gift, however much you would like it to be a large one, and small funds can grow to do more

good," Mrs. Nelson says. "A lot of folks think that a smaller gift isn't worth considering, never thinking that it could be combined with other funds or that there are many needs and some can be attained with smaller amounts."

After Mr. Nelson passed away in 2015, Mrs. Nelson shared her updated estate plans with the college's development team. In honor of the care their dogs Lilly and Jenny had received at the VMC, Mrs. Nelson decided that part of her estate gift would be used to establish the LilJen Shelter Medicine Fund at the College of Veterinary Medicine. This fund will be used to support the college's outreach efforts with shelters and rescue groups throughout Minnesota, not only helping the animals but supporting the training of students. "If you're fortunate enough to give, you should give back," Mrs. Nelson said. "Animals have been an important part of our lives, and I'm happy to be able to support a cause that means so much to me."

For information on making an estate gift to the Veterinary Medical Center, please contact Andrea Fahrenkrug at 612-626-6501 or afahren@umn.edu.



GROW YOUR LEGACY

Whether your passion is the education of veterinary students, groundbreaking research that helps animals, humans, and the environment, or the work of amazing centers such as The Raptor Center or the Veterinary Medical Center, you can nurture your area of interest at the College of Veterinary Medicine.

Planned gifts ensure a bright future for the College of Veterinary Medicine. Opportunities include:

- Bequests in a will or trust
- Naming the College of Veterinary Medicine as a beneficiary of retirement assets or life insurance
- Gifts that provide an income to you or others

For more information, please contact chief development officer Bill Venne at 612-625-8480 or venne025@umn.edu.



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UPCOMING events

AMERICAN COLLEGE OF
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 ALUMNI RECEPTION
 June 8, 2016
 Denver, Colorado

NESTLE PURINA MEMORIES
 GARDEN CEREMONY AND BRICK
 DEDICATION
 July 28, 2016
 Reception: 6:30 p.m. Program: 7:00 p.m.
 Nestle Purina Memories Garden

AMERICAN VETERINARY MEDICAL
 ASSOCIATION CONFERENCE
 ALUMNI RECEPTION
 August 8, 2016
 San Antonio, Texas

ALLEN D. LEMAN SWINE
 CONFERENCE
 September 17-20, 2016
 Saint Paul RiverCentre

POINTS OF PRIDE RESEARCH DAY
 October 5, 2016
 Pomeroy Student-Alumni Learning
 Center

CARE AND MANAGEMENT OF
 CAPTIVE RAPTORS
 October 11-14, 2016
 The Raptor Center

LEMAN CHINA SWINE
 CONFERENCE
 October 16-18, 2016
 Nanjing, China

FALL RAPTOR RELEASE
 September 24, 2016
 10 a.m.-3 p.m.
 Carpenter St. Croix Valley Nature Center
 Hastings, Minnesota

CHINA DAIRY CONFERENCE
 October 24-26, 2016
 Ningxia International Conference Center
 Yinchuan, China



A renovated dairy barn, the Pomeroy Student-Alumni Learning Center is home to the College of Veterinary Medicine's Academic and Student Affairs offices.

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

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