SPRING 2020

On Call

A MAGAZINE FOR FRIENDS OF THE UNIVERSITY OF WISCONSIN SCHOOL OF VETERINARY MEDICINE

Super Dog

Scout and School of Veterinary Medicine star in Super Bowl ad

Soulful Cellmates

Prison inmates train service dogs for people with PTSD

School of Veterinary Medicine
UNIVERSITY OF WISCONSIN-MADISON

THANK YOU,

WeatherTech®

& Pets Make A Difference Donors

Thank you David MacNeil and members of the WeatherTech team for using your Super Bowl commercial to bring attention to the cancer-fighting work at the University of Wisconsin School of Veterinary Medicine. It's been an honor helping Scout in his fight against cancer. And we are grateful that you chose to tell Scout's story — and ours — in the ad "Lucky Dog."

In the weeks since the airing of the 2020 Super Bowl commercial, thousands of generous animal lovers all around the world have made gifts to support clinical cancer research and equipment at the UW School of Veterinary Medicine. The outpouring of support, heartwarming messages, and desire to advance the fight against cancer have been incredible.

Thank you to all who have already donated. Your gifts are having an immediate impact. Your support has allowed our Oncology Service to hire an additional clinical trials intern. This additional staffing will let us move ahead with more oncology clinical trials, meet client demand for trial participation, and accelerate our clinical research program — transforming promising research into innovative treatments and helping patients, particularly those affected by cancer, wherever they live.

Because of WeatherTech's generosity, Scout's story has shown the potential created by many donors coming together to make a difference.

Pets make a difference — and so do you.

School of Veterinary Medicine
UNIVERSITY OF WISCONSIN–MADISON

The Pets Make a Difference campaign continues. In case you missed it, you can view the Super Bowl commercial and learn how to make a gift at **weathertech.com/donate**.

On Call

SPRING 2020

Features

Scout, and SVM, Shine on Super Bowl Stage

When WeatherTech founder and CEO David MacNeil wanted to say thanks to the veterinarians who cared for his dog Scout and raise funds for cancer research, he presented a grand gesture — a heartwarming Super Bowl commercial featuring the 7-year-old golden retriever and the UW School of Veterinary Medicine faculty and staff who have been part of his cancer journey.

Page 10

A Chance to Give Back

Since 2012, nearly 180 inmates at the Oshkosh Correctional Institution have volunteered their time with Journey Together Service Dog Inc., raising and training service dogs to help Wisconsin residents with post-traumatic stress disorder. Students from the UW School of Veterinary Medicine are a key partner, visiting the prison monthly to present information to inmates on dog health.

Page 14

In Each Issue

More

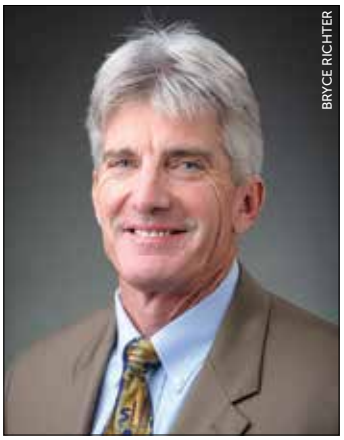
On the Cover

Scout MacNeil stands proudly at an event at the University of Wisconsin School of Veterinary Medicine on January 28 celebrating the release of a Super Bowl ad featuring the school and the 7-year-old golden retriever. Chancellor Rebecca Blank, UW School of Veterinary Medicine Dean Mark Markel, Oncology Professor David Vail, and WeatherTech founder and CEO David MacNeil and family attended the event. (Photo: Bryce Richter/ University of Wisconsin–Madison)

School of Veterinary Medicine
UNIVERSITY OF WISCONSIN–MADISON

Message from the Dean

A Wild Ride


BRYCE RICHTER

Mark D. Markel

This winter has been a wild ride for the University of Wisconsin School of Veterinary Medicine. The school was featured in a Super Bowl commercial in February alongside Scout, a 7-year-old golden retriever who was diagnosed with a heart-based tumor this past summer and given a grave prognosis for even short-term survival.

Fortunately, Scout was referred to our cancer center at UW Veterinary Care and responded well to radiation therapy, chemotherapy, and immunotherapy.

Scout's father, David MacNeil, the founder and CEO of WeatherTech, decided to honor Scout and the School of Veterinary Medicine by creating a 30-second Super Bowl commercial. The ad encouraged viewers to give to the school in support of cancer research and highlighted the importance of this work in advancing innovative cancer treatments and technology. (If, by chance, you haven't yet seen the heartwarming commercial, in addition to an extended video sharing more of Scout's journey, you can view these at vetmed.wisc.edu/scout.)

It's been an incredibly exciting time since the commercial's release, with the school receiving gifts from all 50 U.S. states and all over the world. Equally important, the ad has spotlighted on a global stage the crucial — and sometimes overlooked — impact of veterinary medicine on people worldwide, whether it's the care we provide for their beloved companions, the research we conduct that benefits both animal and human health, or our role in ensuring a safe and vibrant food supply.

Another touching story in this issue of *On Call* is that of Journey Together. Through this program, future service dogs for people with post-traumatic stress disorder are trained and cared for by inmates at the Oshkosh Correctional Institution — a transformative opportunity for these inmates to give back to the community. Our students visit the inmates and dogs-in-training throughout the year to provide lessons on relevant health topics. In turn, they learn from the trainers' knowledge of dog behavior.

You'll also find in this magazine news of several recent research advances around critical human health challenges, including our emerging work related to the coronavirus outbreak and development of a potential Ebola vaccine.

I hope you enjoy this edition of *On Call* and that you have a fantastic spring.

Mark D. Markel, Dean

On Call SPRING 2020

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The printing and distribution of this magazine were funded by donations to the school. To make a gift, contact Pat Bowdish at 608-332-4750 or pat.bowdish@supportuw.org or Heidi Kramer at 608-327-9136 or heidi.kramer@supportuw.org.

Ask a UW Veterinarian

Sooner or Later to Spay or Neuter?

*This expert response comes from **Susannah Sample**, assistant professor of surgical sciences.*

Question: Recently I adopted a young stray pup who wasn't yet spayed. When I took her to my current veterinarian, I learned that they prefer not to spay/neuter until 6-12 months, so the dog's body has healthier growth from hormone changes. I'm wondering how much evidence and acceptance there is in the canine community of this theory?

–Carol, Madison, Wisconsin

Answer: The scientific support behind the recommendation you received is complicated. The risks of waiting until 6-12 months to undertake gonadectomy (surgical removal of the testes or ovaries) are thought to be low, although increases in surgical difficulty and complications, or other effects such as development of undesirable behaviors, have not been investigated. The evidence for potential benefits requires more discussion.

Over recent decades, routine gonadectomy of dogs and cats pre-adoption has become standard practice, resulting in the prevention of tens of millions of euthanasias each year. Recently, investigation has begun into how or whether undertaking gonadectomy in very young animals increases disease risk; ultimately, the current evidence is relatively weak.

Relevant studies are almost all retrospective, based off historical records. Retrospective studies are not designed to establish universal alterations in treatment approach, but should instead be used to formulate questions for future work.

Furthermore, studies to date have focused on a limited number of conditions in only a few breeds, and results between studies are at times conflicting. Based on published research, it appears the risk for development of some conditions in some breeds may be increased when gonadectomy occurs at a younger age, but this relationship appears to be disease-, breed-, and gender-specific. For most conditions under investigation, risk due to breed (e.g. genetics) is believed to be most important for disease initiation.

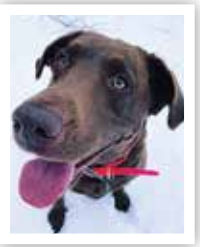
Prospective, forward-looking studies are needed, and results must be interpreted appropriately. For instance, findings from a golden retriever study should not be accepted as applicable to other breeds. Defining the breed-specific genetic basis of these conditions will also be important in understanding the relationship between disease risk, breed, gender, spay or neuter status, and age of spaying or neutering.

Questions

Have a question for our veterinary medical experts?
Please send it to the *On Call* editor at **oncall@vetmed.wisc.edu**.
We cannot guarantee responses to all submissions. For any urgent pet health issue, please contact your veterinarian directly.

Socializing with the SVM

Friends of the school sharing their thoughts (and pets) on social media...



Keep our baby Lola in your thoughts. We found out she is positive for lymphoma. So, we're counting on UW Vet to get us some treatment so she can be back to her big playful self. 5 years hasn't been long enough yet. ♥

–Natasha Grace
Via SVM Facebook (@uwvetmed)

This clinic literally saved my cat's life. He had hyperthyroidism and received radioiodine treatment here. It cured that terrible disease. I can't thank UW enough for restoring my baby to good health. What a blessing to have this level of care in Wisconsin!

–Jamey Chadek
Via UW Veterinary Care Facebook (@uwveterinarycare)

Newly Discovered Virus Infects Bald Eagles Across America

Researchers have discovered a previously unknown virus infecting nearly a third of America's bald eagle population.

Scientists at the University of Wisconsin–Madison, the U.S. Geological Survey (USGS) National Wildlife Health Center, and the Wisconsin Department of Natural Resources (DNR) found the virus while searching for the cause of Wisconsin River Eagle Syndrome (WRES), a mysterious disease endemic to bald eagles near the Lower Wisconsin River. The newly identified bald eagle hepacivirus, or BeHV, may contribute to the fatal disease, which causes eagles to stumble and have seizures.

But BeHV was also found in eagles without symptoms of the syndrome, making a direct link between virus and disease difficult to confirm. The virus is related to human hepatitis C virus, which causes liver damage in people, and some birds with BeHV show similar effects. BeHV infects eagles from Washington to Florida but is most common in Wisconsin's eagles. The researchers published their findings in October in the journal *Scientific Reports*.

Tony Goldberg, a professor of pathobiological sciences in the UW School of Veterinary Medicine, led the study. Goldberg's lab specializes in discovering new viruses. By analyzing all of the genetic material in infected tissue, his team can scan for the genetic signature of any virus within the sample. The technique does not require prior knowledge of what kind of virus might lurk within an animal.

"Everything was pointing toward some unknown virus, but standard diagnostic techniques couldn't find one," says Goldberg.

Working with LeAnn White at USGS and Sean Strom at the Wisconsin DNR, Goldberg's lab analyzed liver tissue from nine birds diagnosed with WRES. The team first spotted the new virus in a bald eagle collected in 2002 in Sauk County. This family of viruses had not been found in birds before, although it has subsequently been identified in ducks as well.

Testing 47 eagles from 19 states across the contiguous United States, the research team found that 32 percent harbored BeHV. Eagles in Wisconsin were nine times more likely to carry BeHV than birds from other states, and the virus was 14 times more common in counties surrounding the Lower Wisconsin River. The river attracts eagles year-round because its open waters allow the birds to fish through the winter.

> "This study has opened our eyes to glaring knowledge gaps about infection in a species of great national importance."

The virus and the syndrome do not appear to endanger the resurgence of the bald eagle, which was removed from the endangered species list in 2007 after recovering from a low of 412 nesting pairs in the contiguous United States.

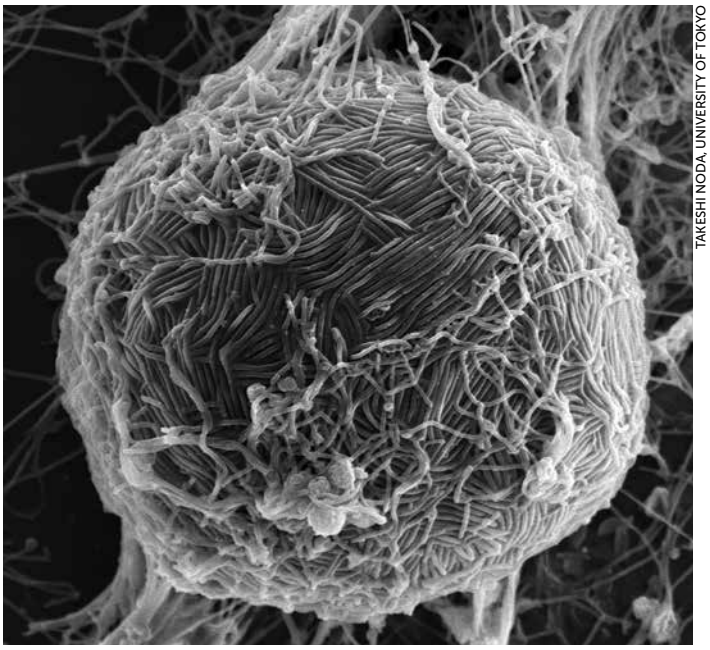
"This study has opened our eyes to glaring knowledge gaps about infection in a species of great national importance," says Goldberg. "It's a more complicated story than we thought it might be at first, but that makes it more interesting."

Eric Hamilton

U.S. FISH & WILDLIFE SERVICE

Scientists at the UW School of Veterinary Medicine were part of a research collaboration that discovered a newly identified virus infecting nearly a third of America's bald eagle population.

Clinical Trial for Ebola Vaccine Developed at UW Underway in Japan



TAKESHI NODA, UNIVERSITY OF TOKYO

Ebola virus swarms the surface of a host cell in this electron micrograph. Like most viruses, Ebola requires the help of a host cell to survive and replicate.

As of December, a phase one clinical trial to test a potential new Ebola vaccine developed by researchers at the University of Wisconsin–Madison is underway in Japan.

Fifteen healthy young men* will receive two doses of the experimental vaccine. If the first group tolerates the vaccine, an additional group of up to 20 volunteers will receive a higher dose of the vaccine.

"In phase one, the main goal is safety," says **Yoshihiro Kawaoka**, professor of pathobiological sciences at the UW School of Veterinary Medicine, who, with **Peter Halfmann**, a research associate professor in his lab, created the new vaccine.

The researchers will also measure whether the immune systems of the trial participants begin to mount protective responses by developing antibodies and an immune memory for the virus after receiving the vaccine. The phase one trial will not involve exposing subjects to Ebola virus.

Unlike other experimental vaccines, the vaccine created by Kawaoka and Halfmann does not rely on a secondary, live-though-weakened virus to deliver a portion of the Ebola virus to the human immune system. In fact, the new experimental vaccine is made from the whole Ebola virus, save for one gene that renders the virus in the vaccine noninfectious.

"Our vaccine contains everything except one small protein," says Kawaoka, also a professor of virology at the University of Tokyo. "It has more antigens to elicit protection and it's an inactivated virus, so it's safer."

Since more of the virus proteins are present in this vaccine relative to others, it also improves the chances the immune system develops a robust capacity to fight Ebola virus if a person is exposed.

The form of Ebola virus contained in the vaccine is a technology Halfmann created more than a decade ago, called DeltaVP30. The technology renders the virus incapable of reproducing itself because it eliminates a gene that makes a protein critical for this task. The virus can only grow in a special cellular system containing the missing protein, which is not found in human or animal cells.

When he developed the technology, Halfmann never envisioned using it to produce an Ebola vaccine.

"It was basically just a research tool for me," he says. "I never really thought we would have the backing behind us to actually go for a vaccine … it's exciting to see we've gone this far."

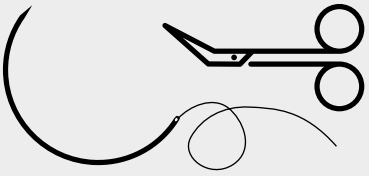
Following a devastating Ebola outbreak in Western Africa between 2013 and 2016 that killed more than 11,000 people, Kawaoka was granted funding in early 2018 by the Japanese government to produce the number of doses needed to launch a phase one clinical trial.

He then approached Waisman Biomanufacturing at the UW–Madison Waisman Center to produce clinical-grade vaccine. The facility was able to provide expertise in manufacturing processes, quality control, product development, and more.

Since August 2018, another Ebola outbreak has erupted in the Democratic Republic of Congo. More than 2,000 people have died. The need for a way to combat Ebola is acute.

Kelly April Tyrrell

* The current phase one clinical trial does not involve women in order to avoid subjects who may be pregnant.

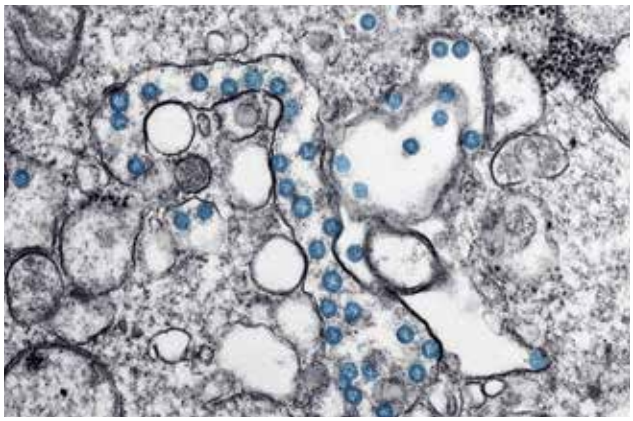


Did You Know?

The strongest knot for tying suture is called an Aberdeen and is a modification of a knot used to moor sailboats. It has a shady history; it was used as a quick getaway knot for bank robbers on horseback.

—Amelia Munsterman, clinical assistant professor, Large Animal Surgery

SVM Researchers Lead Efforts to Understand, Thwart New Coronavirus



CENTERS FOR DISEASE CONTROL AND PREVENTION

Transmission electron microscopic image of an isolate from the first U.S. case of COVID-19. The spherical viral particles, colorized blue, contain cross-section through the viral genome, seen as black dots.

Back in 2016, when Zika virus first began to cause infections in the Americas, University of Wisconsin–Madison researchers pulled together a coalition of scientists to study the virus and openly share their data for others.

In late January, those researchers — **Thomas Friedrich**, professor in the UW School of Veterinary Medicine, and David O'Connor, professor at the UW School of Medicine and Public Health — used the 2016 playbook to start planning efforts to study the novel coronavirus that first emerged in Wuhan, China, in late December 2019.

The virus, which causes flu-like symptoms and respiratory illness, has sickened more than 179,000 people globally, according to health officials. At least 7,400 people have died.

Friedrich, O'Connor, and their interdisciplinary partners have begun studies to better understand the novel coronavirus, COVID-19.

"We are working together to develop a plan to build out nonhuman primate models to test medical countermeasures such as vaccines and therapeutics," says O'Connor. "We want to make sure we are recapitulating the kind of clinical signs (of virus infection) that happen in people."

The researchers are interested in understanding the dynamics of viral infection, including what bodily fluids it can be found in and what cells in the lungs are most vulnerable. They are also interested in aiding basic epidemiological understanding of the virus and in assisting in efforts to identify or develop new vaccines and antivirals. Further, they hope to look at how the immune system responds to the virus and to identify indicators for clinicians to distinguish who is most at-risk for developing severe disease.

At the Influenza Research Institute (IRI) in Madison, School of Veterinary Medicine Professor of Pathobiological Sciences **Yoshihiro Kawaoka** is also studying COVID-19.

Among the research questions he hopes to address is the efficiency with which the natural virus transmits among animal models for disease. The novel coronavirus is capable of transmitting from person to person, but it most likely originated in bats. However, as with other coronaviruses known to cause significant illness in humans, such as SARS-CoV and MERS-CoV, the virus likely passed through another animal before becoming infectious in humans. Researchers have not identified the animal or animals involved.

Kawaoka is also interested in studying how the virus causes illness and what cells the virus is capable of infecting. The results of the work could be used to help develop treatments and vaccines to protect people against infection.

The work at IRI will be conducted in a Biosafety Level 3 Agriculture (BSL-3 Ag) laboratory, which is just below Biosafety Level 4. The Centers for Disease Control and Prevention guidelines call for research using the COVID-19 virus to be conducted in a BSL-3 laboratory since important aspects of how the virus causes disease and transmits are not well understood.

The university worked proactively with Public Health Madison and Dane County, the Wisconsin Department of Health Services, the State Lab of Hygiene, infectious disease specialists, and University Health Services to prepare to conduct the research.

Adel Talaat, professor of microbiology in the School of Veterinary Medicine, and his lab are also working to develop a potential vaccine for the virus based on one they developed for a different coronavirus that infects chickens. That vaccine, a benefit to agriculture, is currently in the process of being licensed.

With these studies, School of Veterinary Medicine and UW–Madison researchers are at the leading edge of efforts to understand an emerging human illness. Kawaoka stresses that basic research studies are necessary to combat pathogens that make animals and people sick. Friedrich, O'Connor, and their collaborators plan to once again share their data publicly so that other researchers may use it to advance the science, and hopefully lead to efforts to improve and protect human health.

Says Friedrich: "My lab is interested in why things like this happen, why do viruses emerge from somewhere and begin causing diseases in humans? What are the evolutionary pathways they need to take hold, and how do they adapt to our immune responses? If we can understand that, hopefully we can erect more barriers to prevent this sort of thing from happening in the future."

Kelly April Tyrrell

Editor's note: The information here is current as of mid-March, when the magazine went to press. The situation surrounding the COVID-19 pandemic is evolving rapidly so some details may have changed by time of publication.

MARK BIDWELL

Crane Conservation

Barry Hartup DVM'93, clinical instructor in the School of Veterinary Medicine and director of conservation medicine at the International Crane Foundation, recently traveled to Wood Buffalo National Park in Canada to assist with banding a record number of endangered whooping cranes, aiding research and monitoring efforts. The project is aimed at better understanding the movements and health risks of whooping crane family groups as they migrate to their wintering grounds in Texas. **Left:** Hartup releases a chick after banding.

Kibble

Little bits of news from around the school

One-two punch: The School of Veterinary Medicine will help test whether adding gallium metal ions to an ultra-thin material carrying antimicrobial silver can defeat the "biofilms" that shield bacteria from antibiotics. Millions of people with severe burns or diabetic skin ulcers could benefit from this experimental enhancement to a next-generation bandage that is already healing difficult wounds.

Resistance acquired: By studying influenza virus samples collected from patients before and after treatment, Professor **Yoshihiro Kawaoka** and colleagues have found that a new antiviral drug, baloxavir, drives drug resistance. While it's unlikely the viral mutation will lead to widespread resistance, it could become a problem among family members in close proximity, and in facilities like hospitals and nursing homes.

Global health: Professor **Jorge Osorio** was involved in the development of a new dengue vaccine that, in results published in the *New England Journal of Medicine*, was shown to be 80 percent effective in preventing the mosquito-borne viral disease and 95 percent effective in preventing severe cases. Dengue was designated a World Health Organization top 10 threat to global health in 2019.

Eyes have it: A newly discovered retinal structure in the eyes of certain kinds of songbirds might help the animals find and track insect prey more easily. Department of Pathobiological Sciences faculty members **Leandro Teixeira** and **Richard Dubielzig** contributed to this finding, detailed in *Scientific Reports*.

Birth defect: A team led by Professor **Robert Lipinski** reports in *Environmental Health Perspectives* that piperonyl butoxide, a chemical commonly used in household and agricultural insecticides, interferes with the critical signaling pathway dubbed by scientists as sonic hedgehog, resulting in stunted forebrain development and signature facial abnormalities.

Gender studies: Clinical faculty members **Samantha Morello** and **Sara Colopy** authored two special reports in the *Journal of the American Veterinary Medical Association* on the intersection of personal and professional lives, and measures of professional achievement and gender differences, for diplomates of the American College of Veterinary Surgeons.

Targeted therapy: Associate Professor **Masatoshi Suzuki** was part of a team to pack a gene-editing payload into a tiny, customizable, synthetic nanocapsule, offering an alternative to viral delivery of gene therapy (which can be complicated and cause troubling side effects).

Super Dog, Super

"Lucky Dog" Scout and UW School of Veterinary Medicine

Scout with members of UW Veterinary Care's radiation oncology and anesthesia services during the commercial shoot on Dec. 5, 2019. From left: Clinical Assistant Professor Michelle Turek and certified veterinary technicians Abigail Jones, Jennifer Borgen, Ashley Onsager, and Molly Sehloff.

When clinicians at the University of Wisconsin School of Veterinary Medicine began caring for Scout in July 2019, they had no idea they would soon inspire, and appear in, a Super Bowl commercial.

But they had a canine star on their hands, and a very appreciative client who set in motion the ad's production. As Super Bowl LIV aired Feb. 2 on FOX, Scout appeared alongside members of the school's faculty and staff who have been part of the 7-year-old golden retriever's cancer treatment journey.

The 30-second commercial, titled "Lucky Dog," aired during the game's second quarter and was paid for by WeatherTech, manufacturer of automotive accessories and home and pet care products. Scout is a member of the family of WeatherTech founder and CEO **David MacNeil**.

The ad followed Scout's journey, celebrated the work being done at the UW School of Veterinary Medicine, and encouraged viewers to donate to the school's cancer research efforts via **weathertech.com/donate**.

This is the first time UW–Madison has been the subject of a Super Bowl commercial. The ad was created by Chicago-based agency Pinnacle Advertising and filmed in December at the school and its teaching hospital, UW Veterinary Care.

"This was an amazing opportunity not only for the University of Wisconsin–Madison and the School of Veterinary Medicine, but for veterinary medicine worldwide," says **Mark Markel**, dean of the School of Veterinary Medicine. "So much of what's known globally today about how best to diagnose and treat devastating diseases such as cancer originated in

Helping Pets Fight Cancer

Visit **vetmed.wisc.edu/scout** to watch the "Lucky Dog" commercial, support the campaign, and learn more about Scout's care and the UW School of Veterinary Medicine's work to treat and prevent cancer. Gifts from private donors are critical to advancing the school's cancer research efforts — discoveries that are shared with the world to inform more effective cancer diagnostics and treatments for both animals and people.

Opportunity

star in WeatherTech Super Bowl commercial

By Meghan Lepisto

veterinary medicine. We were thrilled to share with Super Bowl viewers how our profession benefits beloved animals like Scout and helps people, too."

Cancer is the number one cause of illness and death in the aging dog population. Having lost his last three dogs to cancer and with Scout now also affected by the disease, efforts to advance life-saving treatments and technology are important to MacNeil.

"Scout's illness devastated us," says MacNeil. "We wanted this year's Super Bowl effort to not only raise awareness, but also provide financial support for the incredible research and innovative treatments happening at the UW School of Veterinary Medicine, where Scout is still a patient. We wanted to use the biggest stage possible to highlight Scout's story and these incredible breakthroughs, which are not just limited to helping dogs and pets. This research will help advance cancer treatments for humans as well, so there's the potential to save millions of lives of all species."

> "We wanted to use the biggest stage possible to highlight Scout's story and these incredible breakthroughs, which are not just limited to helping dogs and pets."
>
> –David MacNeil

A beloved family pet and WeatherTech's unofficial mascot, Scout can often be seen around the company's offices in Bolingbrook, Illinois. He appeared in WeatherTech's 2019 Super Bowl commercial and is the face of advertising for the company's pet products.

Last summer, however, tragedy struck when Scout collapsed at home. He was rushed to his local animal hospital, where an ultrasound revealed a tumor on his heart. Scout was given a grave prognosis: a life expectancy of no more than one month. He was diagnosed with hemangiosarcoma, an aggressive cancer of blood vessel walls.

Searching for more information, Scout and his family rushed to UW Veterinary Care on the recommendation of their local veterinarian. There, specialists with the emergency and critical care and oncology teams stabilized Scout's condition and arrived at a cutting-edge treatment plan.

In mid-July, he began chemotherapy at UW Veterinary Care, followed by radiation therapy targeting his heart tumor. He also received immunotherapy aimed at stimulating his immune system to attack cells expressing specific tumor proteins. Just a month later, Scout and his family received good news: His heart tumor had decreased in size by 78 percent. By September, the tumor was 90 percent smaller than its original size.

"Scout is kind of the perfect patient in that he's tolerated multiple modes of therapy very well, his primary tumor has responded beautifully to treatment, and we've been able to maintain his quality of life at a very high level," says **David Vail**, professor and Barbara A. Suran Chair in comparative oncology at the School of Veterinary Medicine. "At the end of the day, Scout's quality of life is his family's most important concern, as it is ours."

The treatments Scout received are the result of years of scientific inquiry involving experts and collaborations from many different fields. Oncologists at the UW School of Veterinary Medicine are world-renowned for advancing clinical treatments for dogs and cats with cancer. More than 3,500 patient

@WTSCOUT VIA IINSTAGRAM (2)

Above: Scout snuggles with Bianca Ferlisi, a fourth-year veterinary medical student from Ross University, who completed her clinical rotations at UW.

Below: Scout poses in front of the School of Veterinary Medicine's Bucky on Parade statue, "Animals Need Bucky Too," created by Kathy King.

BRYCE RICHTER / COURTESY OF WEATHERTECH

Left: Scout with his dad, WeatherTech founder and CEO David MacNeil, at a press event in January.

Right: WeatherTech's unofficial mascot, Scout can often be seen around the company's offices in Illinois.

visits were seen in 2019 through the Oncology Service.

The school is also a leader in comparative oncology research, where companion dogs and cats with spontaneously occurring cancers are included in clinical trials to investigate new cancer therapies. The goal is to create new cancer diagnostics and treatments in both animal and human patients, with a bidirectional flow of information between veterinary patients and people.

Dogs and people not only share similar cancer rates — about one in four dogs and one in three people will develop cancer in their lifetime — but naturally occurring tumors in dogs often share almost identical characteristics to human cancers in terms of recurrence and spread, response to treatment, and more.

Past clinical studies at the School of Veterinary Medicine have yielded new technologies and treatments with better effectiveness and less toxicity. For instance, successful clinical trials in pet dogs with naturally occurring nasal tumors in the early 2000s at UW Veterinary Care led to widespread use of TomoTherapy in human medicine. This state-of-the-art machine, developed at UW–Madison, uses CT-guided radiation treatments to attack cancer with pinpoint accuracy while sparing nearby healthy tissues — a form of treatment that Scout benefited from.

The school is also one of three institutions participating in a five-year clinical trial to test a vaccine for the prevention of many types of cancer in dogs — a potential paradigm shift in veterinary and human medicine.

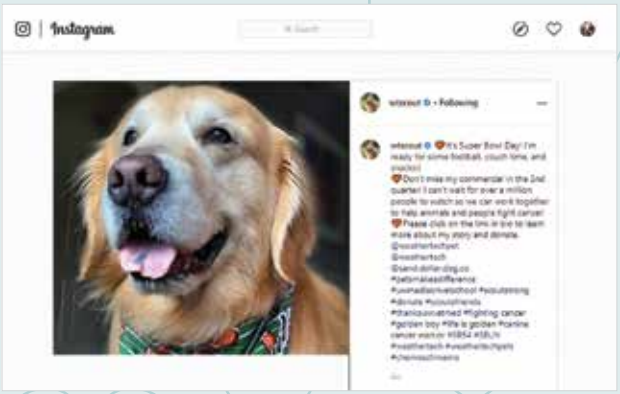
Funds raised by the Super Bowl commercial (100 percent of gifts) will be used to support research at the School of Veterinary Medicine to better diagnose, treat, and prevent cancer and for the purchase of specialized equipment that will aid clinicians and researchers in identifying new cancer-fighting drugs and treatments.

"Having the opportunity to use and apply this 'one medicine' approach more globally will allow us to aid veterinary patients while also helping humans with cancer. It's a huge need that we are working to move forward and we are extremely grateful for the support," says Vail.

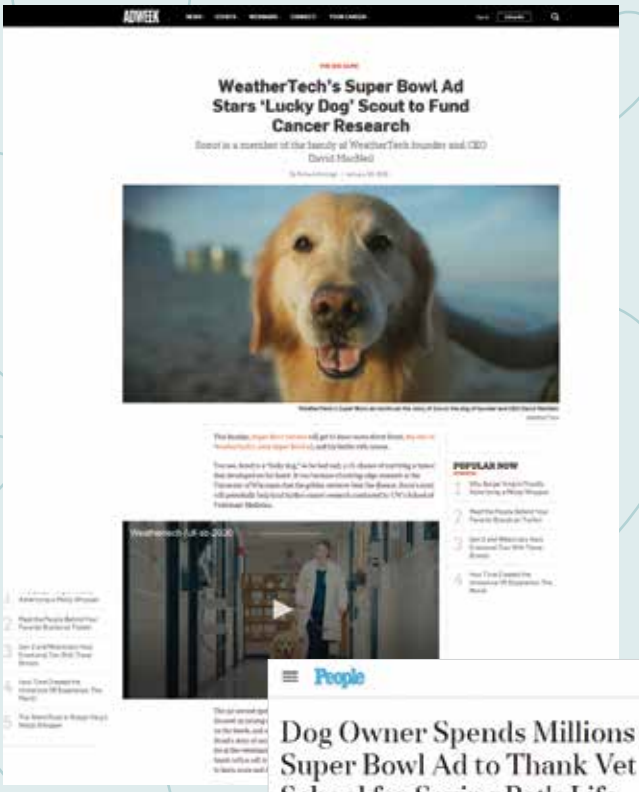
@WTSCOUT VIA IINSTAGRAM

Sporting a bandana signed with messages of encouragement from his care team, Scout relaxes outside UW Veterinary Care after completing radiation therapy.

Scout Touches Millions of Hearts



COURTESY OF WEATHERTECH



Shining on the World's Biggest Stage

Even before Scout's inspirational and heartwarming story aired during the Super Bowl, it had already generated an overwhelming reaction across the world. And in the weeks following the commercial's release, it continued to elevate the university's faculty and staff, share a cancer research message to a global audience, and lift the entire veterinary medical field.

"This new level of understanding and awareness of veterinary medicine and canine cancer, combined with donors' generous gifts, will make possible significant progress in advancing clinical treatments for dogs and cats with cancer, as well as people," says **Mark Markel**, dean of the UW School of Veterinary Medicine.

Media coverage: Scout's story was shared by media outlets as far away as Ireland and New Zealand and included domestic coverage from NBC Nightly News, ABC's World News Tonight, NPR's Morning Edition, NBC's Today Show, and the *Washington Post*, among hundreds of others. The *Los Angeles Times* called it one of the best 2020 Super Bowl ads.

Social media: Scout's commercial has been seen a total of 1.8 million times on YouTube between the UW and WeatherTech channels. Across social media, it has garnered millions of impressions and thousands of engagements.

Donations: The UW School of Veterinary Medicine has received thousands of gifts from all 50 states, plus several foreign countries. The gifts range from $5 to a $250,000 gift of generous support from Petco Foundation and $50,000 from State Farm Insurance. This support has had an immediate impact, allowing the school's Oncology Service to hire an additional clinical trials intern (a post-graduate veterinarian pursuing specialty training), move ahead with more oncology clinical trials, and accelerate the clinical research program. Gift support will also help purchase specialized equipment to aid clinicians and researchers in identifying new cancer-fighting drugs and therapies. To make a donation, please visit **weathertech.com/donate**.

By Meghan Lepisto

BRAD CIRRICIONE (4)

A Journey Together

In service to others, inmates train service dogs. All emerge with lives transformed.

She couldn't leave her house alone, drive long distances by herself, or enter a dark room. That is, until she was placed with a service dog. Now, with her dog by her side, this victim of a crime has begun to heal from her trauma and find the courage to venture out into the world.

"Her dog gave her the strength that she needed to overcome these obstacles," Aaron Smith said proudly during a recent TEDx talk in Oshkosh, Wisconsin. "She told us that we helped transform her life to the point where she learned to trust people again — something she thought she was never going to be able to do."

Smith has helped to raise and train more than a dozen service dogs to assist veterans and crime victims with post-traumatic stress disorder. His background, however, isn't in dog training. He's an inmate at the Oshkosh Correctional Institution.

Since 2012, nearly 180 inmates at the facility have volunteered their time with Journey Together Service Dog Inc., a nonprofit charitable organization that provides highly trained service dogs at no charge to Wisconsin residents diagnosed with PTSD. Dogs in training reside at the prison, where inmates provide their care and training.

Students from the UW School of Veterinary Medicine are another key partner. Each month, small groups of students travel to the Oshkosh Correctional Institution to present short talks and case scenarios on common dog illnesses, disease prevention, and first aid procedures. Past topics have included tick-borne disease and safe tick removal, heartworm, heat stress, and how to take a dog's temperature and pulse. The inmates also demonstrate the behaviors they're currently teaching their dogs; then, students can try their hand at the techniques.

According to Brenda Cirricione, director of training for Journey Together, these veterinary lessons help inmates know what signs or symptoms to watch for in the dogs.

"When the students come in and teach things, the medical reports that come out of the prison are significantly better," she says. "I have a stronger confidence that the men won't miss a symptom of a serious condition."

The inmates value the students' time and expertise, studying before students visit and discussing the topics for weeks afterwards, adds Cirricione. "I don't know that any vet student will be appreciated as much as when they come to the prison."

Katie Hausmann DVMx'20, who has visited the prison for four years, concurs. "I've never seen people so interested in learning," she says. "This program means the world to these guys."

Participation in Journey Together is seen as a privilege among the inmates, who are selected through a written application process and group interviews. Using positive reinforcement methods, they teach the dogs more than 100 verbal and nonverbal commands, customized to each client's needs, from turning on lights to opening doors and locating exits. Along the way, the inmates become highly skilled dog trainers and instructors.

All of the dogs learn to respond to stress signals to comfort a client experiencing anxiety. For instance, when a person bounces a leg or wrings their hands — often-telltale signs of stress — the dog is trained to lay their head or body on the person to apply pressure and interrupt the anxiety event. The dogs are also taught a variety of tricks — an entertaining diversion that can direct unwanted attention away from the future client and their condition.

"We spend a lot of time getting the dogs to really like to learn and work, because we're going to ask them to work the rest of their lives," says Cirricione.

The dogs live full-time with the inmates and share their prison cells. Public outings with community volunteers provide the dogs exposure to scenarios not seen in prison, whether that's complete darkness, busy traffic, or a squirrel darting across a field.

"The men are accountable for everything — care and feeding of the dogs, medication, their grooming," says Cirricione. The inmates' dedication to the program can be seen in their willingness to sacrifice limited cell space for the dogs, she adds. "In a prison you have very little space that's your own and when you give up half of it, it's a big deal."

After about two years of training, dogs are then placed with clients — "when the real magic of this program comes to life," helping people with PTSD "gain a sense of freedom from their psychological prisons," says Smith.

He shares the story of a military veteran who, after being paired with a service dog, was able to visit a crowded public space for the first time in three years and regain the confidence to return to work. Or a client in a wheelchair who hadn't smiled in years, but when she first met her dog "her face immediately lit up," he says. The dog lifted the woman's spirits and gave her the drive to practice mobility exercises.

> "We are all men who have hurt people in our past, but we are all men who are willing to come together while we raise and train these dogs and give back to a community we once took from. This program literally shows all of us that we are on this journey together."
>
> –Aaron Smith, dog trainer, Journey Together Service Dog Inc.

Another Journey Together graduate is now a therapy dog at a domestic abuse shelter, comforting victims and displaced children. Yet another client calls her service dog her lifeline, Cirricione says.

The program provides renewed purpose for inmates, as well, many of whom also have PTSD. An emphasis on teamwork, empathy, critical thinking, communication, and other versatile skills help the men prepare for life and employment following release. At the Oshkosh Correctional Institution and nationwide, recidivism rates among inmates who participate in dog training programs are significantly less than the general population.

Some inmates have been so inspired by the program that they're pursuing careers in the pet industry or as veterinary technicians. Smith, for instance, will be earning a dog grooming and dog training certificate from Fox Valley Technical College.

"It means a lot that we're helping them on that path in life," says Journey Together student liaison **Miranda Elliman DVMx'21**. She recalls an inmate who during one of her visits expressed remorse for his past actions and gratitude for the chance to give back to society. "He said, 'I'm not just serving time for what I did, I'm doing something to better the community.' That to me was pretty impactful."

BRAD CIRRICIONE

From left to right, veterinary medical students Alissa Milonczyk, Katie Hausmann, and Mary Montanye with Journey Together dogs-in-training following a presentation at the Oshkosh Correctional Institution.

‘A Foundation of the Ecosystem’

Amid massive die-offs, a collaborative team hopes to save freshwater mussels, underappreciated animals that benefit the environment and human health in significant ways.

U.S. FISH AND WILDLIFE SERVICE

Diane Waller from the U.S. Geological Survey and Eric Leis from the U.S. Fish and Wildlife Service take a hemolymph sample from a mussel in Wisconsin’s LaCrosse River to check for viruses and bacteria.

Jordan Richard, a U.S. Fish and Wildlife endangered species biologist, is trying to understand why thousands of mussels are dying each year.

Poor water quality and toxins are well-known threats to mussels, but this time, the usual suspects don’t seem to fit. Something has changed, and mussels are dying like never before across the country, including in Wisconsin.

“This is not a natural thing, not a human-induced toxic spill, not a point source (of pollution),” Richard says. “Based on our usual tests, there is nothing obviously wrong, and other species are thriving.”

Enter the Mussel Mortality Response Team, a collaboration among a half-dozen biologists, microbiologists, pathologists, and epidemiologists from the University of Wisconsin–Madison, the U.S. Fish and Wildlife Service in Wisconsin and Virginia, and the U.S. Geological Survey in Wisconsin, including the USGS National Wildlife Health Center in Madison.

In a research first, they’re looking at whether infections might be killing mussels, either alone or in combination with other factors. The results will help them develop diagnostic tools, leading to better health at mussel hatcheries and, potentially, a way to identify and head off problems in the wild.

Tony Goldberg, a professor of pathobiological sciences in the UW School of Veterinary Medicine, is part of the team and has the technology to check for viruses and other pathogens.

“We suspect that one of the causes of these mass declines might be infectious disease,” he says. “The problem is, we know almost nothing about the diseases of freshwater mussels.”

Goldberg, who is also an associate director at the UW–Madison Global Health Institute, is well-known for his studies of infections in everything from fish to apes as he tries to determine the causes of disease and help identify possible remedies.

North America is home to 300 mussel species, more than anywhere else in the world, and historic accounts tell of river bottoms paved with mussels. Today, more than 70 percent are listed as imperiled, at risk, or endangered. Pollution and poisons from manufacturing have taken their toll. Mother-of-pearl button manufacturing in the early 20th century decimated whole populations. But those familiar culprits don’t account for what’s happening now, the researchers agree.

Mussels nestle in riverbeds, mostly going unnoticed. Mass die-offs — unlike hard-to-ignore big fish kills — are also hidden but need the same attention.

Consider this, Goldberg says: "What does it mean for humans if thousands of animals are suddenly dying in our drinking water—and the problem is widespread? This could be an example of an infectious disease that doesn't affect humans directly but impacts us indirectly by damaging ecosystem services such as water filtration. That definitely does impact human health."

Why Mussels Matter

To be clear, freshwater mussels are not what you order in restaurants, sautéed in wine and served with frites. These native species also do not include the invasive zebra and quagga mussels overrunning waters across the U.S., including the Great Lakes.

"Freshwater mussels are absolutely ecosystem engineers," says Richard. "(They) are a foundation of the ecosystem."

Mussels benefit the environment in significant ways, and by extension, benefit human health, says Diane Waller, a research fisheries biologist at the U.S. Geological Survey Upper Midwest Environmental Sciences Center. Mussels are filter feeders, feeding on algae and removing sediments and heavy metals from several gallons of water every day. They stabilize the bottoms of rivers and also provide food for other animals.

One of Waller's favorite demonstrations is to put mussels in an aquarium, then muddy the water with silt. In as little as an hour, the water will be clear again while water in a tank without mussels remains cloudy.

Wisconsin is a mussel mecca with more than 50 species statewide. Healthy mixed populations live in rivers including the St. Croix, Mississippi, Mukwonago and Embarrass. Here's where you'll find fat muckets, pimplebacks, snuffboxes, and butterflies. There are heelsplitters, monkeyfaces, and several "toes," pig, elk, deer. Examine the mussels and many names become evident in the bumpy, wavy, striped, and speckled shells that are colored in dozens of shades of gold, green, black, and brown.

"Wherever there's mussel diversity, the healthier the ecosystem is," says Eric Leis, a fish biologist at the U.S. Fish and Wildlife Service La Crosse Fish Health Center.

Field and Lab Come Together

Pollution and water degradation are the usual focus of mussel conservation efforts. By looking for pathogens, this project adds another piece to the puzzle.

The Wisconsin effort began in 2016, when Leis, Waller, and Goldberg wanted to see what viruses they would find in Mississippi River mussels. Leis and Waller waded along the river's edge, feeling for mussels with their feet — it's called pollywogging — then pulling them out of the sediment for testing.

The study became more urgent when the Wisconsin Department of Natural Resources discovered die-offs of several mussel species, including the endangered snuffbox, in the Embarrass River. About the same time, the Clinch River in the southern Appalachians began to see massive mussel die-offs.

As part of their research, the teams use a syringe to draw hemolymph, or clear blood, from the mussel without harming the animal. Preserved with dry ice, the sample is at Goldberg's lab within 12 hours.

ANN GRAUVOGL/UW-MADISON GLOBAL HEALTH INSTITUTE

Tony Goldberg calls freshwater mussels "among the most biodiverse, beautiful and ecologically important animals in the U.S."

"We're hunting for answers using broad-spectrum molecular analysis and good, old-fashioned field work," Goldberg says. "The lab analysis is of no value without information from the field, but with the field information, lab analyses can provide windows into what's going on in this ecological setting."

In the lab, Goldberg uses the same DNA technology used for the human genome project. Mussel samples are run against millions of DNA sequences in the database at the National Center for Biotechnology Information. "We're getting a sneak peek into the world of mollusk microbes," Goldberg says.

Fortunately, no infections discovered by the team to date are thought to be transmissible to humans.

What's Next and Why Now

Identifying potential pathogens infecting the mussels is a work in progress, Goldberg says. Leis's lab has also been testing for bacteria associated with sick mussels.

Next up is expanding the search to other mussel populations and other die-off events. Soon, the team hopes to develop diagnostic tests for assessing wild populations more quickly and ensuring that only healthy mussels are selected for propagation.

In the wake of a United Nations assessment report finding that 25 percent of the earth's plants and animals are threatened and one million already face extinction, the mussels become a piece of a larger story.

"The whole team has worked incredibly hard over the last two years to make this project happen," Richard says. "We've all simultaneously been sounding the alarm that this isn't a one-off event."

If they can identify key microbes that can infect and sicken mussels, the team can determine what to do next, possibly helping to save the animals. "We've never seen a mussel population recover after a die-off like this," Richard says. "When they're gone, they're gone. … If we don't solve the die-offs now, I don't know if we ever will."

Ann Grauvogl

Dold Awarded American Humane National Humanitarian Medal

American Humane, the country's first national humane organization, has awarded its prestigious National Humanitarian Medal to renowned zoologist, veterinarian, and conservationist **Christopher Dold DVM'01**.

Dold has worked for decades to care for, rescue, and assist in the conservation of the world's animals. After earning a bachelor of science degree in zoology and doctorate in veterinary medicine from the University of Wisconsin-Madison, Dold worked with the National Oceanic and Atmospheric Administration and a nonprofit he cofounded to help rescue stranded Hawaiian monk seals and other marine mammals. He also worked to provide surgical services and medical and preventive care to companion animals in a veterinary hospital.

COURTESY CHRIS DOLD

"Through my career and life, I have had the incredible fortune and opportunity to work with and for animals, and people who care for animals. The work we've done together has always been about making a better world."

Dold went on to become a National Research Council postdoctoral clinical fellow with the U.S. Navy Marine Mammal Program and completed a University of California, Davis internship in marine mammal medicine and pathology at the Marine Mammal Center in Sausalito, where he provided veterinary medical care to animals needing rehabilitation.

In 2005, he joined the team at SeaWorld, where he now serves as chief zoological officer, responsible for the care of more than 80,000 animals representing 350 species at seven different zoological parks. Dold also leads SeaWorld's rescue and rehabilitation program, which has saved and returned to the wild more than 36,000 animals, as well as the organization's science, research, conservation, and education programs.

"For his outstanding work to help preserve the rich legacy of life on Earth for future generations, American Humane is honored to recognize Chris Dold with our National Humanitarian Medal," said Robin Ganzert, president and CEO of American Humane.

Dold is a member of the American Veterinary Medical Association, International Association for Aquatic Animal Medicine, European Association for Aquatic Mammals, and the American Association of Zoo Veterinarians. He serves as the science committee chair for the scientific advisory committee of the Shedd Aquarium's Microbiome Project and is serving or has served on the boards of directors for the Association of Zoos and Aquariums, Canine Companions for Independence Southeast Region, Hubbs SeaWorld Research Institute, One Blood (Florida Blood Centers) Regional Board of Reference, and the International Association for Aquatic Animal Medicine.

Animals are a family affair for Dold, his wife, and children, who share their home with three dogs, a cat, and a parrot.

"I feel truly honored to receive American Humane's National Humanitarian Medal," Dold said. "Through my career and life, I have had the incredible fortune and opportunity to work with and for animals, and people who care for animals. The work we've done together has always been about making a better world. I am humbled by this award."

In Memoriam

The UW School of Veterinary Medicine regrets to announce the loss of an alumnus.

Mark Grundahl DVM'88 of Whitewater, Wisconsin, passed away at home in December. After working in the dairy industry and teaching, Grundahl earned his doctorate of veterinary medicine and worked for 30 years in the veterinary medical field. Grundahl enjoyed watching and attending Wisconsin Badgers games and seeing his daughter, Sarah, show horses. He owned and showed Jersey cattle for most of his life.

COURTESY LINDLEY REILLY

Lindley Reilly DVM'13 sits on the tailgate of her truck in rural Wisconsin. The food animal veterinarian's work, and her dedication to her profession, farmers, and their cows, was recently spotlighted by the *Milwaukee Journal Sentinel* as part of their Dairyland in Distress series, reporting on the ups and downs of the dairy industry. To view the story: **go.wisc.edu/reilly**

A Message to DVM Alumni

A Super Profession

When I first learned about the potential for our (your!) school to be featured in a Super Bowl ad, one of my first reactions was excitement for the entire veterinary medical profession. Throughout our building campaign we have been working to educate people about how important veterinary medicine is to everyone — even if they don't have a cat, dog, horse, or (in Wisconsin) a cow. As people learned more about the breadth, depth, and impact of the school, I'd frequently hear that we are a best-kept secret.

Certainly, the profession has always enjoyed a great reputation. Anyone who has loved an animal can speak to how important veterinarians are to that treasured bond. Dairy farmers and others in the agricultural industry know how critical veterinarians are to keeping animals healthy and to business success. And yet, so many people don't know that veterinarians do all of this and more.

If you don't want to be a secret anymore, a Super Bowl commercial is a great place to start! Thanks to WeatherTech — who could have chosen to promote one of their products instead — we had the opportunity to introduce the impact of veterinary medicine to a worldwide audience. We couldn't be more thrilled with the outcome. Millions of people around the world heard about Scout and the care he received. They learned that our pets can get cancer and it can be treated, while still maintaining an exceptional quality of life. They learned that by caring for our pets, we can learn things that benefit humans, too. And while this certainly doesn't cover all of the benefits of veterinary medicine, it was an exceptional introduction.

It has been gratifying to hear from so many of you about how proud you are to have your alma mater and profession showcased in this way. While I don't see another Super Bowl commercial in our future anytime soon, know that we will continue to promote all that you do. And we encourage you to join us in that effort. Veterinary medicine is truly a super profession and that shouldn't be a secret!

Kristi V. Thorson

Kristi V. Thorson
Associate Dean for Advancement and Administration

Cook Named WVMA Veterinarian of the Year

WVMA

Pictured, left to right, are WVMA President-Elect Thomas Bach and Nigel Cook.

The Wisconsin Veterinary Medical Association named **Nigel Cook**, head of the Department of Medical Sciences at the University of Wisconsin School of Veterinary Medicine, the 2019 Veterinarian of the Year.

Cook teaches in the Core Skills and Advanced Skills in Production Medicine elective rotations in the final year of the doctor of veterinary medicine curriculum and he lectures on bovine mastitis, lameness, and animal welfare. In addition, he manages the School of Veterinary Medicine's Dairyland Initiative, which offers virtual tours, building guidelines, benchmarks, workshops, and real-time multilingual support to address concerns with facility design and dairy cow health and wellbeing.

"Dr. Cook is an advocate for the cows, the sustainability of agriculture and allied industries, and the power of our profession in creating a positive image of animals and the food products produced by the animals under our care," says **Sheila McGuirk**, professor emerita with the School of Veterinary Medicine.

Cook has tirelessly engaged alliances among veterinarians, dairy and animal scientists, engineers, industry professionals, agricultural companies, and technologists to create and disseminate usable tools that measure, benchmark, calculate, and enhance health and welfare practices on the farm.

"Through extensive research, clinical trials, and on-farm observation, training, troubleshooting, and collaborations, he has advanced the basic premises of productivity, longevity, health, welfare, and responsible interventions on farms that are home to food-producing animals," adds McGuirk.

A Wisconsin Veterinary Medical Association member since 2003, Cook is also a respected leader on the Food Armor Committee, a group tasked with educating veterinarians and producers on food safety and proper drug use, as well as developing the content and providing program support for the Food Armor Foundation's Antimicrobial Stewardship Solutions program. He has also been involved with the American Association of Bovine Practitioners, the American Veterinary Medical Association, the American Dairy Science Association, and the National Mastitis Council.

Additional WVMA Honors

Several other members of the UW School of Veterinary Medicine community were honored at the Wisconsin Veterinary Medical Association (WVMA) Excellence in Veterinary Medicine Awards Ceremony in November. Founded in 1915, WVMA's mission is to advocate and promote veterinary medicine, while enriching animal and human health.

Friend of Veterinary Medicine

Kristi Thorson, associate dean for advancement and administration, UW School of Veterinary Medicine

Meritorious Service Award

Eric Rooker DVM'13, Dairy Doctors Veterinary Services

Presidential Award

Douglas Kratt DVM'98, Central Animal Hospital

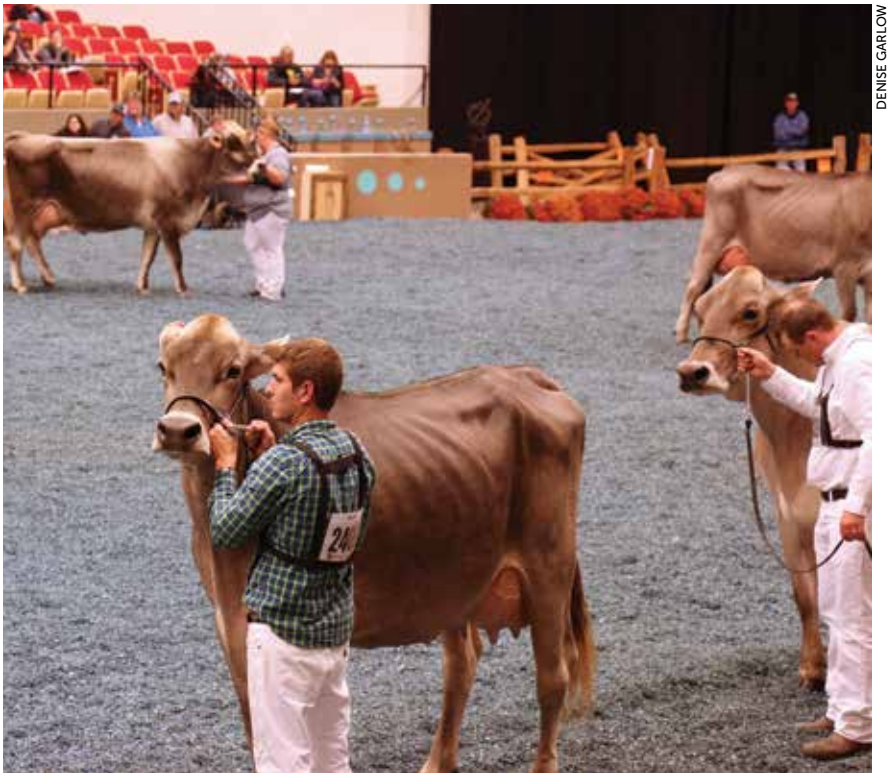
Outstanding Service Team

Country Hills Pet Hospital (team members include alumni **Mark Thompson DVM'96** and **Stephanie Winske DVM'17**)

McGuirk Wins Honorary Klussendorf Award

COWSMO

Professor Emerita Sheila McGuirk receives the Honorary Klussendorf Award during the 53rd World Dairy Expo.



DENISE GARLOW

Cows are exhibited at World Dairy Expo's dairy cattle show in Madison, Wisconsin.

Sheila McGuirk, professor emerita of large animal internal medicine and food animal production medicine, was named the 17th winner of the Honorary Klussendorf Award during the 53rd World Dairy Expo in Madison in October. The award is the highest recognition given to a dairy cattle showperson in the United States.

From the moment she interviewed for the then soon-to-be-opened University of Wisconsin School of Veterinary Medicine (SVM) in 1982, McGuirk embraced her new community and the grand cow show at World Dairy Expo. Throughout the process, she helped transform dairy cattle healthcare.

After being recruited to the SVM, McGuirk volunteered at the 1983 World Dairy Expo. She's been volunteering and leading change at the show ever since — all while keeping in mind the heart of the farmer and the needs of the consumer. This deep appreciation for bovines and their caretakers makes her a trendsetter known worldwide in the dairy industry.

World Dairy Expo draws nearly 70,000 people from 100 countries, serving as the meeting place of the global dairy industry. It brings together the latest in dairy innovation and the best cattle in North America for a dairy cattle show, trade show, seminars, and more.

At the event, McGuirk has played a pivotal role in developing techniques to test milk for possible adulteration, partnered with others on ultrasound techniques at the show, and modernized the cattle check-in process.

Most recently, she led efforts to research overbagging, the practice of overfilling the udder with milk for show day to enhance its physical appearance, which has implications for the health and welfare of cattle. McGuirk and others in the SVM have advanced strategies to monitor overbagging and its effects using ultrasound and, in coordination with World Dairy Expo, have informed exhibitors and judges about how this condition affects a cow's wellbeing.

McGuirk retired in 2016 after 33 years on the UW School of Veterinary Medicine faculty. She is a key reason for the school's international reputation for expertise in dairy cattle health and has received countless other awards. These include the American Association of Bovine Practitioners (AABP) Award of Excellence in 1998 and being named Kansas State University's Legend in Academic Medicine in 2010, Wisconsin Veterinary Medical Association Veterinarian of the Year in 2000 and 2016, World Dairy Expo Industry Person of the Year in 2012, and Merck Animal Health/AABP Mentor of the Year in 2018.

JULIE WILLIS

Rayne has proved a faithful companion on and off the farm, breaking up bull fights with uncommon bravery and nurturing nursing home residents as a therapy dog.

‘Always by My Side’

Patients of UW Veterinary Care have a range of occupations: faithful companions, heroic public servants, and devoted service animals, to name a few. **Rayne**, a six-year-old border collie, spends her days herding cattle at Sunnybrook Farms in Belvidere, Illinois with her people, **Terry and Julie Willis**.

An on-farm accident in 2018, however, fractured Rayne’s paw and threatened her leg and her life. But surgery and collaborative treatment at UW Veterinary Care, followed by dedicated aftercare from the Willis family, helped Rayne heal and return to work.

When not tending to cattle, Rayne enjoys visiting nursing home residents as a certified therapy dog. She’s also training in the sport of nose work. Her nurturing demeanor and dedication on and off the farm helped Rayne earn second place in *Prairie Farmer* magazine’s 2019 Favorite Farm Dog Contest.

“Rayne is really a gift. She will do anything you ask her to do,” says Julie Willis. “We can’t imagine life without her.”

To the right, read Julie’s winning essay, originally published in *Prairie Farmer*, about this kind, resilient canine.

Essay by Julie Willis

My border collie was aging but I was reluctant to get just any dog. I’m a firm believer in knowing the right dog will find you. So, when my sister called saying she saw a border collie puppy on Craigslist, I said definitely not! Long story short and a 10-hour trip to Iowa, Rayne came to live with us.

She fit right in, shadowed my old dog, learning quickly. We raise and show Belted Galloway cattle, and Rayne always makes sure the show heifers are in their feeding pens, following them into the fan pens. She patrols the fence line, checks gates, and is always by my side.

Her sweet disposition allowed me to train her to become a certified therapy dog. In a care facility, she focuses on the patient, almost melting into them, and will stay with them as long as they like. Little did I know I was getting my own personal therapist in the deal! She was with me and my mom as mom dealt with the final stages of Alzheimer’s disease. Rayne’s speckled coat absorbed my tears, and she never flinched when I gripped her with one hand, while holding Mom’s with my other.

Shortly after my mom’s funeral, tragedy struck. I was opening a gate to move bulls, when two of them began to fight. Sensing I was in danger in the corner, Rayne rushed in to help separate them. In the fracas, one of her paws was severely crushed. The ensuing infection threatened to take her entire leg.

After two weeks of intensive veterinary care, including a weeklong stay at the University of Wisconsin-Madison’s vet hospital, she is fully recovered (minus one toe), and back out helping me with the cattle and bringing joy to nursing home residents all over our community.

CUTTING-EDGE DIAGNOSTICS FROM

HEAD TO HOOF

A new diagnostic tool at UW Veterinary Care is changing the game for large animal imaging. Our CT scanner allows clinicians to acquire images of standing, sedated patients — without the need for anesthesia and the associated risks.

Developed by School of Veterinary Medicine faculty and other UW-Madison scientists, this state-of-the-art technology allows us to improve the diagnosis and treatment of limb conditions, as well as diseases of the head and neck. The patient's limbs remain in a functional position during the scan, producing images that may be superior to those acquired in anesthetized animals.

MAJOR PATIENT BENEFITS:

> QUICK SCAN: An average scan of the head or limbs only takes about 30 seconds, and both front or hind limbs can be scanned simultaneously

> SMOOTH RECOVERY: Since animals stay standing, the risk of stress-related injuries during recovery is lessened

> PREVENTIVE SCREENING: An ideal tool for the early detection and monitoring of stress injuries and prevention of fractures

UW Veterinary Care
UNIVERSITY OF WISCONSIN-MADISON

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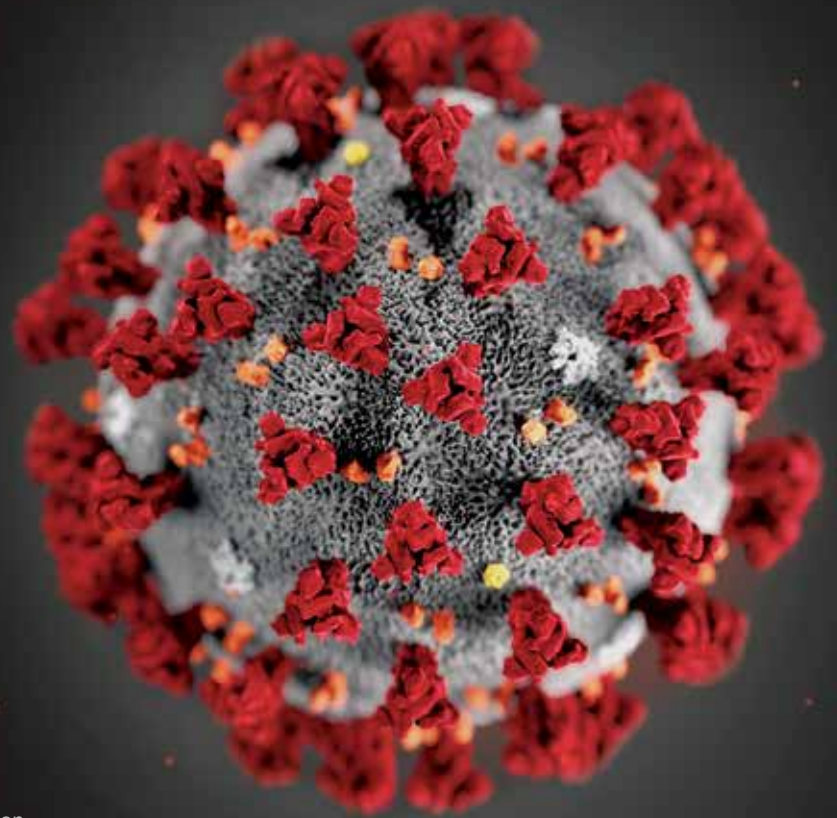
Understanding the Coronavirus Outbreak

In the aftermath of the outbreak of a novel coronavirus, COVID-19, that first emerged in Wuhan, China in late December 2019, several scientists at the UW School of Veterinary Medicine are among those at UW–Madison addressing questions and concerns from the public and leading global efforts to understand and thwart the virus. These include Professors **Kristen Bernard, Thomas Friedrich, Yoshihiro Kawaoka, Chris Olsen,** and **Adel Talaat,** working in collaboration with interdisciplinary partners across campus and the world. Results of their work could be used to help develop treatments and vaccines to protect people against infection. **Read more on page 8**.

To learn more about UW-Madison's response to COVID-19, visit **covid19.wisc.edu**.



ALISSA ECKERT, DAN HIGGINS/CDC

The 2019 Novel Coronavirus (COVID-19), portrayed in an illustration created at the Centers for Disease Control and Prevention.