The numbers are staggering. Each year shelters across the country take in anywhere from four to eight million animals, and each year two to five million of those animals die, according to the most recent estimates from the Humane Society of the United States.

“There is no affliction among companion animals that even approaches the level of mortality associated with animal homelessness,” says Sandra Newbury, clinical assistant professor of shelter medicine at the UW School of Veterinary Medicine (SVM).

Many of these deaths occur despite the efforts of well-meaning animal lovers, often due to lack of information—a problem Newbury is working to address.

“Veterinarians are uniquely positioned to support the incredible efforts of shelters by educating about shelter animal health and well-being, as well as the underlying complexities that contribute to this devastating problem,” Newbury says. “It’s so important for us to be involved now and to train future veterinarians to expand and continue that support.”

To bolster this work, the SVM has directed significant resources to the creation of a new Shelter Medicine Program, including Newbury’s position as its director. This commitment has helped the school raise more than $1.3 million in grants, outright gifts, and pledges to help fund the program into the future.

“We have been active in shelter and canine rescue efforts for years, and we have seen the impact that caring veterinarians can have in supporting homeless animals,” says Jeff Wiesner who along with his wife, Sara, has pledged to give $500,000 over 10 years to the program. “We appreciate the capabilities of the SVM, where we have sought treatment for complex issues with foster dogs and our own pets. We hope the outcome of our gift is a better understanding among new veterinarians of the special challenges facing shelters and rescue groups and how each of them can make a difference helping these organizations.”

The field of shelter medicine focuses on improving the well-being of homeless animals by working closely with shelters to learn from their experiences, expand their knowledge base, and support their work. This includes investigating new ways to manage at-risk animal populations; conducting clinical research that improves shelter care and treatment; setting standards for shelters; and training shelter staff, practicing veterinarians, and veterinary medical students in best practices.

Newbury, who joined the SVM in November 2014, has an impressive track record in these areas. As a national extension veterinarian at the Koret Shelter Medicine Program (KSMP) at the University of California, Davis, School of Veterinary Medicine, she helped shelters across the United States, Australia, Canada, and Europe manage disease outbreaks and dramatically increase live release rates.

She is also chair of the Shelter Standards Task Force for the Association of Shelter Veterinarians and co-authored the organization’s Guidelines for Standards of Care in Animal Shelters.

In addition to Newbury’s position, the new funds will be used to hire an outreach veterinarian to work directly with the shelter medicine community, a clinical research assistant to help advance
A MESSAGE FROM THE DEAN

Spring Is on Its Way

There’s much to celebrate and be thankful for at the UW School of Veterinary Medicine. First, here’s hoping that winter is behind us and a beautiful spring will soon arrive.

Second, we completed our American Veterinary Medical Association Council on Education site visit on Feb. 1–5, and we should hear about our reaccreditation in September. I want to thank everyone who helped draft our self-study, worked on making our facilities the best that they could be, and interacted with the site visit team. Our success in this endeavor was only possible because of the efforts of individuals such as yourselves.

As highlighted in this issue of On Call, our remodeled entrance is complete. I believe it is now much more representative of the school’s compassion and warmth. Now we are about to complete two new designs that will significantly enhance the school’s infrastructure.

Planning for our solar panel remodel, which will house an expanded clinical skills training center and many group learning spaces, will be completed this spring with construction scheduled to start in the late fall of 2015. The feasibility study for our new building addition, which will significantly expand our small animal hospital and research infrastructure, will be completed in a month or two. We have formed a Capital Campaign Committee, which is assisting us with planning for raising the funds necessary for construction of this facility.

On behalf of the school, I want to thank each of you for all that you do to enhance our success and make this place such a positive environment for our students, employees, clients, and patients.

Mark D. Markel

Four New Members Join Board of Visitors Team

In late 2014, the UW School of Veterinary Medicine welcomed four new members to its Board of Visitors, the external advisory body to the school. Members of the board have attained prominence in their respective careers and are chosen because of their value in providing sound advice and counsel to the dean.

Dr. John Been, Class of 1988, is the president-elect of the Wisconsin Veterinary Medical Association and will serve as its president in 2016. He specialized in dairy production medicine for 24 years as a partner in the River Valley Veterinary Clinic in Plain, Wis., before shifting to relief large animal work in area clinics.

Dr. Terrence Clark, Class of 1987, is the co-founder and president of Nexcyon Pharmaceuticals, a research-based pharmaceutical company located in Madison, Wis., that develops new drugs for the treatment of diseases in companion animals. He is a Diplomate of the American College of Veterinary Clinical Pharmacology and its past president.

Phil Jennings, a Madison resident and UW Law School alumnus, is the president and general counsel of Next/Partners, Inc., a private equity real estate development firm he founded in 1999 in San Diego, Calif. As a U.S. Army aviation warrant officer, Jennings developed an appreciation for the role veterinarians play in ensuring the integrity of food supplies for deployed personnel.

Karen Walsh, a retired assistant dean for external relations for the UW College of Engineering, has served as a cat foster parent for more than 20 years and is active in many Madison, Wis., area non-profits that she and her husband, Jim Berbee, support through their foundation. Walsh holds bachelor’s and master’s degrees in journalism from UW–Madison.

Recent Faculty Honors

Yoshihiro Kawaoka, professor in the Department of Pathobiological Sciences, earned a 2014 Popular Mechanics Breakthrough Award for his efforts to understand and prevent pandemic influenza.

Linda Schuler, professor in the Department of Comparative Biosciences, was named the winner of the 2014 Doris Slesinger Award for Excellence in Mentoring for the exceptional guidance she has given women assistant professors as they navigate the tenure process.

Karen Young, clinical professor in the Department of Pathobiological Sciences, was inducted into the European Society of Veterinary Clinical Pathology (ESVCP) Veterinary Clinical Pathology Hall of Fame for her many contributions to the field.

Attention Alumni!

Are you receiving the Alumni E-News every other month?

If not, please contact Kristi Thorson at kvthorson@vetmed.wisc.edu with your preferred email address to ensure you stay up to date on the latest happenings with your alma mater and former classmates.

Save the Date

Open House
Sunday, April 26, 2015
10:00 a.m. – 4:00 p.m.

Featuring
• Tours of UW Veterinary Care
• Interactive displays and animal demonstrations
• Dozens of hands-on activities for adults and children
• Unusual and exotic animals and therapy dogs
• And much, much more

More information available at www.vetmed.wisc.edu/open-house/
Study: Imaging Technology Can Track Stem Cell Transplants

When you buy a replacement alternator for your ’88 Toyota Corolla, it’s easy enough to see the new part. The same cannot always be said for the replacement cells that are being tested for healing or replacing diseased tissue. These cells, derived from various kinds of stem cells, have great healing potential, but as they enter clinical trials, scientists need better ways to identify the transplanted cells—and the “daughter” cells they spawn.

“Cell therapies are beginning to be tested in clinics, and we need a way to explain why we see the results we see,” says Christina Lewis, a PhD student in the lab of Masatoshi Suzuki, assistant professor of comparative biosciences at the UW School of Veterinary Medicine.

For example, neural cells grown from stem cells are being tested to treat ALS, the fatal nerve-muscle disorder sometimes called Lou Gehrig’s disease, Lewis says. “If we don’t see an improvement, we need to understand what went wrong. Did the cells die? Did they migrate somewhere else?”

And if the patient does improve, knowing that the transplanted cells are present and alive helps document that the treatment works.

Lewis, Suzuki, and colleague Stephen Graves, a research assistant in the UW–Madison Department of Medical Physics, have tested a solution to the problem in the form of a gene in the stem cells that picks up a manganese isotope that can be seen by both PET (positron emission tomography) and MRI (magnetic resonance imaging) scanners. The isotope serves as a beacon for the transplanted cells, revealing their location in the body.

“We have a long tradition of working to make the lives of shelter animals better,” says Dean Mark D. Markel. “The school is dedicated to training our students in this very important field and enhancing their hands-on skills and understanding of the importance of giving back to the community.”

This influx of funding gives us our first opportunity to truly formalize and focus those efforts.”

Nik Hawkins
When Hogmanay the hedgehog encounters an unfamiliar situation, he usually curls himself into the comfort of a spiny little ball. But during his visit to UW Veterinary Care (UWVC), he’s all curiosity, exploring the little world of the exam room with a flickering nose and dark, darting eyes.

Hogmanay is at the clinic to have a few skin lesions evaluated. For moral support, his owner, Melanie Conklin, has a few of his rodent pals in tow, including Chinicula, a puffy white chinchilla who lifts his forelimbs when he wants to be held, and Swampmonster, a fidgety brown degu with a penchant for turning straw bedding and drinking water into cage sludge.

Conklin, who houses even more chinchillas and degus at home (all of them adopted from shelters), is part of a growing group of exotic pet owners, and her small rodent menagerie represents only part of the species mix. According to the 2012 U.S. Pet Ownership and Demographics Sourcebook, 20 percent of American households own pets other than cats or dogs, including birds (3.1 percent), fish (6.5 percent) and exotic or specialty pets (10.6 percent), a category that encompasses reptiles, amphibians, small mammals, marsupials, primates, invertebrates, and more.

Being the only veterinary medical hospital in the Midwest with board-certified zoological medicine specialists on duty year round, the UWVC Special Species Service has seen more than its fair share of everything from armadillos to zebra finches. In recent years, they have cared for a baby lizard weighing less than a gram, a lumbering 100-pound African spurred tortoise, and even rarer creatures, such as ring-tailed lemurs, a red panda, and an elusive harpy eagle. But not all of their patients are so exotic.

“The majority of our caseload consists of birds, reptiles, and small mammals, such as rabbits, rodents, and ferrets,” says Christoph Mans, clinical assistant professor of zoological medicine at the UW School of Veterinary Medicine (SVM).

Just like their dog and cat counterparts, Mans says, exotic animals need annual wellness exams and sometimes specialized care, which UWVC delivers.
The clinic supports specialists in 22 other areas, such as dentistry, neurology, radiology, and physical rehabilitation, who collaborate with the Special Species Service to provide comprehensive care for exotic animals.

The benefits of this expertise extend from the clinic to the curriculum. Veterinary medical students complete a two-week rotation with the Special Species Service in their fourth year, but their education about exotic animals begins in the classroom. Mans and Kurt Sladky, clinical associate professor of zoological medicine, teach an exotic animal course, which includes live lab sessions on how to handle and examine a variety of reptiles, small mammals, and birds, which students will likely encounter in one form or another if they go into practice. Sladky and Mans also train several zoological medicine residents, in collaboration with the Milwaukee County Zoo Foundation (ICF) in Baraboo, Wis.

“We have one of only 25 accredited zoo medicine residency programs in the world, and also one of the largest,” says Sladky, who serves as director of the residency program. “Our partnerships with zoological organizations like the Milwaukee Zoo and ICF give our residents unparalleled training in zoo and wildlife medicine, and graduates of our program work in large zoos and academia internationally.”

When they’re not treating patients or teaching, Sladky and Mans can be found in the lab devising ways to improve clinical care for exotic animals, with a particular focus on managing pain in zoo, wildlife, and exotic pet species. If this isn’t enough, the SVM’s zoological medicine team provides volunteer clinical care at the Four Lakes Wildlife Center, a division of the Dane County Humane Society dedicated to helping injured, ill, and orphaned wildlife.

To Conklin, these are just some of the signs that her rodent friends are in good hands at UW Veterinary Care. She’s been returning ever since her first experience with the clinic five years ago when one of her hedgehogs went into hibernation, a condition that can be fatal for domesticated versions of the spiny little mammals.

“I called UW late that night and was connected with someone from the Special Species Service,” she says. “They told me the steps for waking up a hedgehog properly. They even called the next day to make sure everything was okay.”

Just like that sleepy hedgehog, the outcome for Hogmanay is pretty positive. After inspecting the lesions, Mans determines they are not cause for serious concern and prescribes a medication to help clear up the hedgehog’s skin. And Conklin leaves feeling better, knowing that the Special Species Service is working to help Hogmanay feel better.

Nik Hawkins
New Study Explains Mysterious Bat Hibernation Disease

White-nose syndrome (WNS) has killed millions of bats across North America, leading to drastic population declines that could be devastating for the environment and the economy. But the function of the disease, named for the signature white fungus found on the noses and wings of infected bats, has remained a mystery, leaving experts unsure of how to fight it.

Fortunately, a new study has unraveled the mystery. It suggests that WNS may be killing bats by increasing the amount of energy they use during hibernation, disrupting the delicate energy-rationing balance they must maintain to stay healthy.

This new understanding of how the disease works means scientists can more effectively develop ways to help keep bats alive, says Michelle Verant, a postdoctoral researcher at the UW School of Veterinary Medicine and U.S. Geological Survey National Wildlife Health Center and lead author of the study.

Read the study: go.wisc.edu/fqp447

Wing damage from fungus in a little brown bat.

Research continued

Genome Editing Brings Researchers Closer to Cure for Neurological Disorder

As one of the most common inherited neurological disorders, Charcot–Marie–Tooth disease (CMT) affects about 1 in 3,000 people. It causes damage to the peripheral nerves, which connect the brain and spinal cord to the rest of the body, leading to muscle weakness, chronic pain, and fatigue. Although the disease is not fatal, many people afflicted by it eventually need leg braces in order to walk.

In cases of CMT Type 1, the most prevalent form of the disease, a gene duplication compromises the myelin coating of the peripheral nerves, disrupting the signals that they convey to the limbs. In searching for a cure for CMT, John Svaren, professor of comparative biosciences at the UW School of Veterinary Medicine and the Waisman Center, has focused his research on improving myelin integrity, and one of his studies, recently published in ACS Chemical Biology, leads in a promising new direction.

Svaren and his collaborators used new genome editing methods to modify the duplicated PMP22 gene associated with CMT1A in Schwann cells that are responsible for making myelin for peripheral nerves. Essentially, they inserted a “meter” into the gene that allows them to quickly conduct millions of tests to measure what drugs most effectively modify the PMP22 gene’s signal. Reducing the extra amount of PMP22 should prevent or halt the progression of CMT symptoms. It is the first time genome editing technology has been coupled with a drug screening, says Svaren, who is optimistic that it will lead to a cure for CMT.

This research was supported by the National Institutes of Health and was a collaboration with other investigators in the newly formed National Center for Advancing Translational Sciences. This collaboration has been fostered by support from the Charcot–Marie-Tooth Association.

Read the study: go.wisc.edu/j36224

Nik Hawkins

Study Reveals Cellular Process Behind Milk Fever

For dairy cows, generating the amount of calcium necessary for milk production and good health can be challenging, especially during the early stages of lactation. In some cows, calcium levels drop to dangerously low levels, a condition called milk fever, or periparturient hypocalcemia, which can drag down milk production and even prove fatal if left untreated. It’s a common problem, and expensive, each year costing the U.S. dairy industry as much as $300 million and about $12,000 per Wisconsin dairy farm.

A recent study by a group of UW–Madison researchers offers insight into how to prevent or treat this condition. Previous research has shown that serotonin—a molecule used by the brain, nerves, and other tissues for a variety of purposes—is vital for maintaining maternal calcium levels in rats and mice. To discover how serotonin makes this happen, Rob Lipinski and Chad Vezina, assistant professors of comparative biosciences at the UW School of Veterinary Medicine, teamed up with Laura Hernandez, assistant professor of dairy science in the UW College of Agricultural and Life Sciences.

Combining their expertise, respectively, in cell signaling pathways, epigenetics (or how genes influence an organism’s behavior), and lactation biology, they used a mouse model to discover a previously unidentified role for a particular cell signaling pathway in the regulation of calcium levels during lactation. The finding provides a new target for potential preventative measures or treatments for milk fever.

Read the study: go.wisc.edu/h72c82

Nik Hawkins

SVM’s Bjorling to Co-lead New UW Urological Health Center

With an $8.3 million grant from the National Institutes of Health, UW–Madison has created the George O’Brien Center to enhance the diagnosis and treatment of benign urological disease in men.

Primarily, the center will study what causes changes in prostate tissue and explore the relationship between lower urinary tract dysfunction and benign prostatic hyperplasia (BPH), a noncancerous disease that causes prostate enlargement. Nine in 10 men develop BPH by age 80, 75 percent of whom develop at least one symptom of lower urinary tract dysfunction, such as urinary urgency and incontinence.

Dale E. Bjorling, associate dean for research and professor at the UW School of Veterinary Medicine (SVM), will co-lead the center with Professor William A. Ricke of the UW School of Medicine and Public Health Department of Urology. Chad Vezina, assistant professor of comparative biosciences at the SVM, will also be affiliated with the center.

Read more: go.wisc.edu/af254w

STEM CELL from page 3

useful,” says Lewis, “and this combination gives us flexibility, depending on what is available in the clinic. MRI gives great soft-tissue contrast and good detail and shows the surrounding anatomy. PET can detect a very small amount of the manganese contrast agent so we can reduce the dose of the agent.”

Finally, because the detection rests on a genetic alteration of the stem cell, subsequent generations of cells can also be seen, says Suzuki, an expert in neural stem cells. “We can potentially monitor cell survival and behavior for months or even years.”

The new technique would need approval from the Food and Drug Administration before entering human clinical trials.

Lewis and Suzuki published the results of a recent study in the journal Theranostics. Other collaborators include medical physics professors M. Elizabeth Meyer and Robert Nickles.

David Tenenbaum
A Family Business: Four Generations of Veterinarians Serve Stoughton Community

According to family lore, the Culham’s decision to settle in Stoughton, Wis., was made by a horse.

In 1889, shortly after David Culham graduated from veterinary medical school in Canada, he stopped at a Stoughton hotel on his way to settle in the west. During his stay, he was summoned to care for an ailing horse. Culham liked the town, so he decided that if the horse survived, he would stay; if it died, he’d move on.

Needless to say, the horse survived, and more than 125 years later, four successive generations of Culham veterinarians, including Class of 1988 alumna Cindy Culham, have served the Stoughton community. Their legacy led to the family’s induction into the Stoughton Hall of Fame in May 2014.

For Cindy, veterinary medicine is more than an occupation. It’s a family affair that began with her great-grandfather and continued with her grandfather, Clare Culham, and father, Merrill Culham.

“It was a day-and-night business for our family,” says Cindy. “My dad’s clinic was in the basement of our house. My mom answered the phone, my grandma did the billing, and I helped in the office. Veterinary medicine was a way of life for our family.”

That way of life drew Cindy to the profession.

After working on cancer research for 10 years at the Vermont Regional Cancer Center in Burlington, Vt., Cindy learned about the new veterinary medical school being built at the University of Wisconsin in her home state.

“I always knew I wanted to be a veterinarian,” says Culham. “The new veterinary school was the impetus to go back to school.”

More than 25 years later, Cindy continues the family trade at Chalet Veterinary Clinic, a small and large animal practice in Stoughton, where the Culham tradition began.

Cindy Culham, Class of 1988, conducts a physical examination on Trudie, her patient at Chalet Veterinary Clinic in Stoughton, Wis., the town where four generations of Culham family members have practiced veterinary medicine.

The Culham family was inducted into the Stoughton Hall of Fame in May 2014 for their 125 years of service to the community. Pictured clockwise from upper left: David Culham, Clare Culham, Cindy Culham, and Merrill Culham. The images of the Culham men are graduation photos from their respective veterinary medical schools.

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Jane Pruhs

Lahner Investigates Cause of Massive Sea Star Die-off

Class of 2011 alumna Lesanna Lahner is part of a team of investigators whose research indicates that a 70-year-old ocean virus may be linked to what’s been causing millions of West Coast sea star deaths since 2013.

The study results were recently published in the Proceedings of the National Academy of Sciences and are available at http://go.wisc.edu/8cwsrn. Sea star wasting disease has affected at least 20 species along the West Coast, from Alaska to Southern Mexico, making it potentially the largest known marine wildlife epizootic to date. The disease causes behavioral changes, lesions, limb amputation, and death as early as 12 hours after infection.

Lahner serves as a marine life veterinarian at the Seattle Aquarium in Seattle, Wash., and notes that the wasting disease has killed many of the starfish housed at the aquarium.

Hershberger-Braker Named WVTA Veterinarian of the Year

Karen Hershberger-Braker, Class of 2010, received the Wisconsin Veterinary Technician Association’s Veterinarian of the Year Award in October for her outstanding support for veterinary technicians and the advancement of the field of veterinary technology. She is a full-time instructor in the veterinary technology program at Globe University-Madison West and serves as the clinic supervisor for Dane County Friends of Ferals’ monthly spay and neuter clinics.

Kristi V. Thorson
Associate Dean for Advancement and Administration
Remodeled Front Entrance Delivers a Welcome Change

When students returned to classes at the UW School of Veterinary Medicine last fall, they were welcomed by a remodeled lobby with updated stonework, digital directories, and a redesigned second floor lounge—all done to create a more inviting and functional space.

Making the entrance and second floor lobby more open, the old brick partitions separating the second floor lounge and the main stairwell were replaced with new metal railings and stone facades. The addition of electrical outlets and charging stations now meet the technological needs of students who frequent the area.

In addition, digital screens located on both levels feature maps, directories, school news, and alumni class photos. The second floor screen is located amid several new display cases showcasing the school’s history and the influence of students, faculty, staff, and alumni in the veterinary medical world.

In the months following these updates, Sally, an immense giraffe skeleton who has greeted visitors to the building since 1991, was cleaned, repaired, and reinstalled on a new stand thanks to the help of Senior Instructional Specialist Kalen Nichols and Mark Nofsinger, a former instructional specialist in the Department of Comparative Biosciences. Facilities Manager Karen Mier and Associate Dean Kristi Thorson oversaw the project.

View a slideshow of improvements: go.wisc.edu/1O70s1

Jane Pruhns