PETS IN PAIN
They can’t tell you where it hurts

PLUS: IDITAROD VET • OLD HORSES • A BETTER MOUSETRAP
The Dog with the Titanium Bone

Tyson could win an award for stoicism. Osteosarcoma, a common bone cancer so painful that medication doesn’t provide much relief, had invaded the 7-year-old Rottweiler’s left foreleg.

“Tyson used to love to go for walks, but slowly, he stopped going out,” recalls his owner, Rachna Khanna of South Glastonbury, Conn. “One day, we noticed he was limping. We thought maybe he had twisted something and took him to the vet to get an X-ray. That’s when they found a lump and the cancer in his limb.”

Amputation is the accepted treatment for this aggressive cancer. Dogs do not experience the same psychological trauma that people do after losing a limb, and most can race around happily enough on three legs. But amputation challenges dogs that already have mobility issues caused by severe arthritis or neurological disease, for example. And such heavyset giant breeds as St. Bernards, Newfoundlands, Great Pyrenees and mastiffs often struggle after losing a forelimb because dogs bear most of their weight on their front legs.

Tyson had ligament tears in each front knee, and Khanna and her husband hoped to save his leg to avoid even more stress on an already-unstable joint.

Their research into alternatives led them to the Cummings School’s Foster Hospital for Small Animals, one of three veterinary hospitals in the country that offer a novel limb-sparing surgery for dogs. Earlier this year, Tufts orthopedic surgeon Michael Kowaleski, V93, operated on Tyson, removing the cancerous bone and replacing it with a custom titanium implant. The procedure can be more successful than a bone implant or graft because there is a lower risk of infection, and dogs regain mobility quickly.

Tyson is once again going on walks and playing with his two younger canine housemates. “He still has a bit of limp,” says Khanna. “But he’s healthy and looking good, and we are so happy the cancer is gone.”

—Genevieve Rajewski
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Cover illustration: Vivienne Flesher
Back cover photograph by Alonso Nichols
The Ties That Bind

When I graduated from veterinary school in 1981, veterinarians and others were just beginning to talk seriously about the human-animal bond. The first university-based community service program in the human-animal bond had been established in 1979 by Dr. Leo Bustad at Washington State University, and four years later, our former dean, Frank Loew, created the Center for Animals and Public Policy at Tufts University.

Work conducted by the center was and continues to be based on the tenets that animal well-being matters, that animal and human well-being are linked, and that both are enhanced through improved understanding of human-animal relationships. Through the early work of faculty members like Dr. Elizabeth Atwood Lawrence, a veterinarian and anthropologist, courses exploring human-animal relationships helped shape the distinctive Tufts ethics and values inherent in our veterinary professional curriculum.

Today, the human-animal bond is more often explored under the rubric of human-animal interactions (HAI), and there has been a gratifying expansion of the breadth and depth of the field. I am pleased to report that the Cummings School and the Center for Animals and Public Policy at Tufts University have strengthened their involvement by establishing HAI partnerships with colleagues across the university and at Tufts Medical Center. These include collaborations with developmental psychologists at the Institute for Applied Research in Youth Development in the Eliot-Pearson Department of Child Development on the Medford/Somerville campus, obesity experts at the Center for Youth Wellness at the Floating Hospital for Children and physicians in multiple Tufts Medical Center departments, including psychiatry and oncology.

In this issue you will read about our interest in HAI in several forms. Whether it is recognizing and treating pain in our animal companions, exploring the wisdom of a lifelong equine partner or acknowledging the importance of a pet’s health to underserved communities at the Tufts at Tech Community Veterinary Clinic, the interaction of animals and humans is compelling and deserves our attention.

Dr. Temple Grandin has noted that animals “are part of who we are.” An animal scientist, humanitarian and animal welfare advocate, Grandin’s recent visit to Tufts, highlighted in this issue, reinforced the importance and need for better understanding of our lives with animals.

It is no surprise that our best efforts are often spurred on by the energy and commitment of our students. This was demonstrated recently in endeavors ranging from animal welfare to biomedical research. In November, a team of Cummings School students achieved first place in team assessment and third place overall at the annual Animal Welfare Judging and Assessment Competition, held at the University of Guelph. Our students also competed successfully against medical, dental and graduate students to win first, second and third prizes in the Charlton Poster Competition organized by the Sackler School of Graduate Biomedical Sciences at Tufts. Congratulations to these students and their faculty mentors for continuing to showcase the Cummings School as an outstanding place to learn and work.

Sincerely,

Deborah T. Kochevar, D.V.M., Ph.D.
Dean and Henry and Lois Foster Professor

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The single-engine plane soared 1,000 feet above the Alaskan tundra, shuddering with every blast of arctic wind. Below, moose looked like flakes of pepper to Michael Leverone, V84, who was flying into Skwentna (population 37), the second checkpoint along the Iditarod dog sled race course.

Leverone worried the moose might cross paths with the mushing teams along the first 80 miles of the 975-mile race between Anchorage and Nome. "Moose hate wolves, a natural predator," he says. "They can't distinguish a dog from a wolf, so if they see dogs, including sled dogs, they'll attack them."

Still he enjoyed the ride. The owner of the Reading Animal Clinic in Reading, Mass., Leverone used to fly small planes for fun. And he was eager to work with sled dogs, which he first encountered during a family vacation to Alaska in 2011, when he visited the racing kennel of 2004 Iditarod champion Mitch Seavey in Seward and the Iditarod headquarters in Wasilla.

Iditarod Vet

Caring for sled dogs in the middle of nowhere at 20 below, well, it just doesn't get any better for Michael Leverone, V84.

Iditarod sled dogs race across sea and river ice, over two mountain ranges and in-winds gusting at 60 to 80 mph.
“It made me realize that the Iditarod is a very big deal, and they need lots of volunteers, including veterinarians, to pull the thing off,” says Leverone.

When he returned from Alaska, Leverone applied to serve as a volunteer veterinarian for the 2012 race. Four months later, “on a Tuesday night in mid-January, I got a call out of the blue from the head veterinarian,” he recalls. “He said, ‘We’ve got an opening.’ I signed up for the full two weeks, figuring I might as well go for broke.”

First run in 1973, the Iditarod commemorates a dog sled run in 1925 that delivered an antitoxin that saved children in Nome from a diphtheria outbreak. Today as many as 100 sled dog teams compete in Alaska’s most popular sporting event. Mushers begin the race with up to 16 dogs each and take anywhere from a little over a week to double that to cross the finish line. They race across often treacherous sea and river ice, over two mountain ranges and against 60 to 80 mph winds. The route itself is equivalent to more than a third of the width of the continental United States. The record time of just under eight days and 20 hours was set in 2011 by John Baker, the first Eskimo to win the race.

A rookie volunteer vet, Leverone arrived in Anchorage a few days before the race to participate in a workshop on sled dog medicine. He traveled light, but the items in his duffel bag were heavy-duty: a sleeping bag, pad and bivouac sack that would keep him snug at 20 below; a knife, headlamp and multitool; a surgical instrument pack and medications; a signal mirror and water-purification tablets.

There are 20-plus checkpoints along the Iditarod trail, which alternates between a southern and northern route in odd and even years. At each checkpoint, race officials record the mushers’ times in and out and confirm that they are carrying the required survival gear. Other volunteers provide mushers with straw to bed down their dogs and their predropped supplies: dog food, food for themselves and spare gear, including extra sled runners.

In addition to certifying the dogs as healthy (including a prerace EKG to check the heart rhythm), the job of the 52 volunteer veterinarians, Leverone says, is to examine the dogs at each checkpoint, provide medications for the dogs and advice to the mushers, and care for any animals that have to drop out along the way. At many checkpoints, the veterinarians are the only health-care professionals; some of the vets tell stories of suturing cuts and treating other health issues of the mushers or other volunteers.

Leverone worked four checkpoints, to which he was shuttled by the Iditarod Air Force, a fleet of bush planes that, besides ferrying personnel and supplies up and down the trail, also carries dogs deemed unfit to continue racing back to the major pickup points. His assignments ranged from “large” metropolitan areas (the kind that have two stores, a bar and a restaurant) to remote Native Alaskan villages. He slept foot-to-ear in a tiny log cabin, normally used as a post office and heated with a kerosene stove, and in a large community hall in Unalakleet, a town of 700 people on the Norton Sound. A few checkpoints are just tents in the wilderness. “At one point I heard wolverines had gotten into a food cache, and they had to schedule extra plane flights to replace destroyed supplies,” he says.

More than 1,000 dogs left the starting line in 2012. Early in the race, the veterinarians’
Not Guilty

Bad behavior doesn’t land dogs in shelters

It’s long been thought that behavior problems drive the majority of owners to surrender their pets to animal shelters. That perception is based, in part, on research by the National Council on Pet Population and Policy, which found that behavior issues, including aggression toward people and other animals, were the most frequent reasons for owners relinquishing their dogs. But that study was published more than a decade ago and based on data from just 12 shelters.

However, more expansive research published this year—and based on information on more than a million dogs from 800 animal-welfare organizations in North America—has uncovered the real culprit for surrenders: the owners themselves. According to PetHealth Inc., the Canadian pet insurance company that conducted the survey, these are the top 10 reasons that dogs end up in shelters:

1. Too many pets in the household (18% of surrenders)
2. Unwanted/incompatible pet (10%)
3. Owner moving/deployed by the military (10%)
4. Stray/found/abandoned animal (8%)
5. Owner unable to care for animal (8%)
6. Financial/home insurance policy restrictions (6%)
7. Euthanasia request (5%)
8. Unwanted litter/pregnant female (4%)
9. Allergic to animal (4%)
10. Family health problems/death of owner (3%)

Although 86 percent of relinquishments were for owner-driven reasons, dog-specific causes for surrender to shelters included health problems, aggression and hyperactivity.

—BETTY LIDDICK

“This article is adapted with permission from Your Dog: The Newsletter for Caring Dog Owners, published by the Cummings School of Veterinary Medicine. For subscription information, go to TuftsYourDog.com or call 1.800.829.5116.

OVERHEARD

“Clearly dogs are not humans, but physiologically speaking, they are very similar.”

—LISA BARBER, TUFTS VETERINARY ONCOLOGIST, IN SCIENTIFIC AMERICAN, ON HER STUDY THAT FOUND THE USE OF PESTICIDES AND HERBICIDES MAY ELEVATE RISKS FOR CANINE LYMPHOMA AND NON-HODGKIN’S LYMPHOMA IN HUMANS
When veterinary and vocational educators join forces, it’s a good outcome for pets in underserved communities.

Jon Hicks furrows his brow and scans the morning caseload. “Is that crypto...err...neuter still coming in?” he calls out to his teacher. “Is that where we removed one testicle, but missed the other?”

“Yes, a 1-year-old dog is coming in for a neuter,” Julia Fetherolf tells Hicks, 16, a student in the veterinary assisting program at Worcester Technical High School. Ever the patient teacher, she explains. “But a cryptorchid neuter is the surgery that’s performed when only one of the animal’s testicles is descended.”

Although the conversation might send most teen boys into fits of giggles and cause many a grown man to squirm, Hicks is all business. He wants to observe the delicate operation, which will prevent a family pet from getting cancer or suffering from testicular torsion, which cuts off the blood supply.

“This is going to be kind of fun,” says Hicks. “We’ll be able to easily get the one that’s descended, but there’s going to be some fishing around for the one in the abdomen.”

He pauses and then adds, with a grin, “I guess this is where we separate the men from the boys.”

Until last spring, Hicks and 28 other juniors and seniors in the veterinary assisting program would have practiced on stuffed animals and listened to classroom lectures about how to interact with clients.
by Genevieve Rajewski
photographs by Alonso Nichols

and their pets—lots of telling, but little showing. Then two faculty members at the Cummings School of Veterinary Medicine, Elizabeth Rozanski and John Rush, had one amazingly creative idea: Why should aspiring veterinary assistants practice on toys when there is a large underserved pet population near their high school in central Massachusetts? And fourth-year Cummings students would surely benefit from more primary-care experience.

The vocational high school is now home to the Tufts at Tech Community Veterinary Clinic, which offers subsidized care to pet owners who meet certain income guidelines.

The students from Tufts and Worcester Tech form a veterinary team that offers checkups, blood work, vaccinations, routine surgeries, dental cleaning and other primary care to 275 dogs, cats, rabbits and other small pets every month. Vet assisting at Worcester Tech, one of seven such licensed high school programs in the country, enables students to graduate with a high school diploma and veterinary assistant certification. The high school students take patient histories and staff the clinic as receptionists, cashiers and laboratory assistants.

Guided by clinic director Greg Wolfus, V98, the Tufts veterinary students provide a diagnosis and create a treatment plan for each pet. The Cummings students also contribute to the learning environment at the high school. “Now that we’re working in a real clinic, we are also looking at X-rays and samples under a microscope and talking to the veterinary students about what these show,” says Hicks. “So it’s a really great learning experience.”

Most of the clinic’s clients qualify for food or housing assistance. Their average annual household income is about $15,000. “It is amazing how people who can’t always make ends meet will still find a way to come up with $10 to get their pet medical attention,” says Hicks.
‘A good way to spend a life’ is how marine ecologist Heidi Weiskel describes her work to preserve the world’s ecosystems.
One of the most exhilarating things Heidi Weiskel hears before a business trip: Pack your boots. That means fieldwork, and whether it’s studying snails in San Francisco Bay or trying to protect endangered mangroves in Panama, the sights, sounds and science of habitat exploration and preservation are more mission than job for this marine ecologist.

A trip to Buenos Aires Province in 1999, while she was a graduate student at the Cummings School, was the hook. Weiskel joined a research team studying the impact of local fishing on Franciscana dolphins, a threatened species that were ensnared and killed by fishing nets. “That experience made me realize how much I love the detail of keeping data, doing background research, figuring out what a species is doing in its own habitat—and why,” she says. “The fact that you could have an entire career out with these animals and in these habitats—it seemed like a gift.”

After graduating from Tufts with a master’s degree in animals and public policy in 2002, Weiskel quickly decided she “wanted to be the scientist offering the expert opinion.” She earned a Ph.D. in ecology at the University of California, Davis, and in 2012 started work as one of three scientists at the Environmental Law Alliance Worldwide (elaw.org), a nonprofit based in Eugene, Oregon, that provides science-based evidence and legal advice to lawyers and activists in 70 countries working to protect endangered environments and the people who depend on them.

Already Weiskel has traveled from Baja to Belize to Panama. In Baja she advocated for measures to protect marine organisms from brine and cleaning substances that would have been discharged from a large desalination plant proposed to support mining operations.

In Belize she worked with a coalition trying to create a protected environmental corridor along the Mesoamerican Reef, a diverse ecosystem stretching 620 miles from Mexico’s Yucatan Peninsula to the Gulf of Honduras that is threatened by development, pollution, tourism and overfishing.

In Panama, the environmental insults were perhaps most heartbreaking, she says. Rampant construction, both completed and planned, has ecologists alarmed—high-rises, luxury housing and tourism development projects that would destroy dwindling mangrove habitats, an elevated highway to be built across Panama Bay, and a massive open-pit copper mine to the north that could devastate 25 square miles of what Weiskel calls “spectacular rainforest” in the Mesoamerican corridor.

Just before Weiskel arrived in Panama last May, a high-court ruling on a lawsuit brought by developers stripped Panama Bay of its protected status, opening up to unfiltered development what Weiskel calls “an exceptionally critical place environmentally.” The bay, she says, is “one of the greatest places for birds to gather in the world,” a life-supporting annual stopover for an estimated one to two million migratory birds that forage and rest there on their flights between North and South America.

Mangrove forests, with their labyrinth of roots, frame Panama Bay and offer protective nurseries for a diversity of marine species that sustain those migrating birds and other wildlife as well as the economically critical local fishing industry. Mangroves act as buffers against storms, floods and erosion, and they filter urban pollution before it enters the marine food chain.

The Panamanian court ruled (critics say it was on a technicality) that the government failed to properly consult with local residents before designating the bay as a protected area in 2009. Six years earlier, the bay had been declared a wetlands of international importance by the Ramsar Convention on Wetlands, a coalition of countries committed to wetlands protection. Conservationists are mounting appeals, but Weiskel says she’s worried that the ruling and other recent pro-development decisions by the current administration will result in projects that will fell mangroves, fill wetlands and devastate ecosystems at a “spectacular rate.”

When Weiskel put her boots on the ground in the Central American nation, she and her Panamanian hosts were stunned by what she says felt like environmental “violence.” Recently leveled mangrove stands had been filled in with landfill waste. “Acre upon acre, and us walking through piles of trash,” she says. “Right there on the topsoil were all these crab bodies. I felt like I was walking over a gravesite.”

TOUGH EQUATION

Among Weiskel’s challenges is balancing economics and environment—“helping people imagine the connections between ecosystems and human health [and] explaining the severity of potential consequences in a complex world in which species depend on each other for survival,” she says.

Weiskel’s doctoral research focused on how increased levels of nutrients, primarily from fertilizer runoff, affect competition between invasive and native species of mud snails, disrupting ecosystems. She discovered a population of the Japanese sea snail Batillaria attramentaria in San Francisco Bay; the invasive species is thought to have hitchhiked on oysters used for regional aquaculture.

Her environmental conscience was nurtured on a farm in Leverett, in western Massachusetts, where she grew up. During summers, the family visited Star Island, off Portsmouth, N.H., which has offered educational retreats for more than a century.

“Generations return year after year (her parents met and married there). The best part: “We were free to eat kelp, run around, tease each other with crabs, figure out what all that sea life was about,” she says.

“I got into [marine biology] because I love oceans, and I love the species in the oceans. You’ve got to think every day: Am I working for what I love?”

After earning an undergraduate degree in literature from Harvard University, Weiskel realized she needed to pursue a larger narrative. “Increasingly around the world we’re going to be running up against stories where [environmental impact] is not just about an inconvenience; it’s life-threatening.”

She wants to continue to use her expertise to help others around the world “protect environments for all species—human and nonhuman. It feels like a good way to spend a life.”

Linda Hall is a freelance writer in Hopkinton, Mass.
Jasper falters and then collapses several times as she enters the exam room. The years have not been kind to the 11-year-old yellow Labrador retriever. Complications from a seizure condition have left her rear legs unsteady, and like many older dogs (and people), she suffers from arthritis. A couple of years ago, Jasper twisted a hock while wrestling with a canine playmate.

Her owner, Paul Schnaittacher of West Brookfield, Mass., uses a towel sling to get his pet upstairs at night. He carries the 70-pound dog downstairs in the morning. “I put her in my lap, and we slide down the steps,” he says. “She needs help with just moving around, period, and I don’t know how much fun that is for her.”

Like many owners of an aging pet, Schnaittacher wishes Jasper could simply tell him where it hurts and what would make her life easier. To get those answers, he brought his pet to Alicia Karas, N85, V89, head of the Pain Consultation and Referral Service at Tufts’ Foster Hospital for Small Animals.

One of only two veterinarians in Massachusetts who focus their practice on the treatment of chronic pain—and one of about 30 such experts nationwide—Karas’ job is a tricky one.

Human pain medicine is complicated enough, given that the causes of chronic pain are still poorly understood, and pain medicine as a specialty emerged just after World War II. And there is no test for pain. Physicians depend on their human patients to rate their discomfort on a scale of 1 to 10, or indicate the intensity of their pain by pointing to a chart of increasingly unhappy stick-figure faces—hardly the most precise diagnostic tools. Veterinarians face an additional hurdle: Their patients can’t put words to their discomfort.

But what can’t be conveyed verbally might be evinced in more subtle ways—a look, for example, or the turn of an ear. To advance her work in diagnosing and managing pain, Karas has collected hundreds of gigabytes of digital video and photographs (and before those, scads of film and stacks of VHS tapes) over two decades in an effort to document what animals in pain look like.
Her work mirrors two relatively new pain-assessment techniques used in human and lab animal medicine. In 2006, a scientist at Missouri State University developed the Classification of Pain Expressions, software that uses facial recognition to compare elements of a baby’s expression against a database of 60 photographs of infants undergoing a heel-prick blood draw, a standard procedure believed to be painful. Four years later, Canadian researchers announced the development of a Rat Grimace Scale and Mouse Grimace Scale, which teach laboratory technicians how to evaluate five features of a rodent face to determine whether it is hurting.

So what does a pet’s “pain face” look like?

“Well, if I told you to pretend that you have awful, crushing abdominal pain, you’d stiffen up. You wouldn’t breathe as deeply,” says Karas. “You’d start thinking about yourself, not about the outside world, and appear inwardly focused. You might squat. You might frown. If you could move your ears, you might move them back. When I look at all my videos and photos, I see a lot of these types of grimace faces.”

Jasper was able to telegraph her pain to Karas. The dog lies down in the exam room, but she looks anything but relaxed. Her neck is stretched out, her graying muzzle hovering just above the floor. Her brow is furrowed, her face to determine whether it is hurting.

As Jasper enjoys a dog treat, Karas taps several hair-thin needles into place: one on the dog’s head for calming and pain relief and others along her back, hindquarters and rear legs. Before all the needles are in, Jasper stretches out comfortably and snoozes for the rest of the 90-minute appointment.

Karas suggests a special harness so that Schnaittacher can help Jasper up and down stairs. Because Jasper prefers lying on hardwood floors to the rugs her owners have put down to keep her from slipping, Karas says a rosin spray applied to the dog’s pads will provide traction. She’s optimistic that Jasper’s pain will subside.

Advances in veterinary medicine mean that animals are living longer—and are therefore more likely to experience pain as a result of cancer, arthritis, dental disease, glaucoma or injury. While geriatric pets like Jasper often have medical issues that can’t be fixed, Karas says that veterinarians are finally beginning to assemble a toolkit to treat pain as its own problem—instead of accepting it as an unavoidable side effect of other conditions.

THE PAIN WE SHARE

Pain medicine as a veterinary specialty is relatively new. As recently as a decade ago, most veterinarians assumed that animals didn’t feel pain, or at least experienced it differently than humans. It was thought that pain helped keep a pet inactive so it wouldn’t cause further harm.

“Just imagine a doctor telling a mother, ‘We are going to let your toddler go without pain relief after surgery so he doesn’t move around and hurt himself,” Karas says. “It’s basically the same thing.”

Now all evidence points to the contrary. Research has shown that animals and humans have similar neural pathways for the development, conduction and modulation of pain, making it pretty likely that our pets experience pain in much the same way we do.

Even in people, pain is often undertreated. Fifty percent of chronic pain suffers who had visited a physician got what they felt was sufficient relief, according to a 2005 survey by Stanford University Medical Center.

“If we’re looking at practically half of the human population that’s in pain getting undertreated, I have to believe that over 95 percent of animals in pain are not getting proper treatment,” says Michael Petty, president of the International Veterinary Academy of Pain Medicine.

DON’T PLAY VETERINARIAN

When it comes to easing your pet’s pain, never give any medication without first consulting your veterinarian. Drug dosages and their risks largely depend on an animal’s size and organ function. And if you’re thinking about giving your dog or cat some of your over-the-counter pain medications, close the medicine cabinet door, says Alicia Karas, head of the Cummings School of Veterinary Medicine’s Pain Consultation and Referral Service.

In 2011 alone, the ASPCA Animal Poison Control Center fielded more than 165,000 phone calls about pets exposed to poisonous substances—with over-the-counter human medications being the third most common toxin reported.

Anti-inflammatory drugs such as ibuprofen and naproxen are the most common causes of poisoning in small animals. Even small doses of such pain relievers as Advil, Bayer aspirin and Motrin will cause stomach and intestinal ulcers and kidney damage in cats, Karas says. And “Tylenol will kill cats,” she warns, because acetaminophen, the active ingredient, damages feline red blood cells and interferes with their ability to transport oxygen.

It’s not just human medications that need to be handled with care. Pets can be poisoned by veterinary medications if they receive more than the prescribed dosage or are given a drug prescribed for another animal.

If your pet ingests a potentially toxic medication, call your veterinarian or the ASPCA Animal Poison Control Center’s 24-hour hotline at 888.426.4435.
of Pain Management, founded in 2003 to advance pain management in animals. “This should be considered an epidemic.”

Chronic pain in pets—the kind that builds slowly over months and years—is largely untreated because its symptoms are insidious. Acute pain that results from an accident or surgery, say, is easier to spot, “because there often is an abrupt change in the animal’s behavior—whether it’s crying out or not using a leg,” notes Petty, who runs an animal pain center in Michigan and frequently lectures on pain at national veterinary conferences. “Chronic pain is more of a challenge, because most animals adapt to it by curtailed their activities.”

To determine whether your pet is in pain, think about the animal’s daily routine—and compare what your cat or dog does now versus two or three years ago. Arthritis, for example, commonly goes undiagnosed in cats, Petty says, and may be discovered only when the animal appears to be wasting away. “I’ll ask the owner, ‘Where do you feed your cat?’ And the answer comes back, ‘On top of the washing machine because otherwise the dog will eat the food.’ Well the cat just can’t jump up there anymore. It’s virtually starving.”

Age is never the sole reason an animal stops doing something. “Old dogs like to play, go for car rides and eat,” says Petty. “They just do things a little bit more slowly because they have decreased muscle mass. They don’t have the energy of youth, but they still like to do all those things.” If pets are not showing an interest in daily activities, more often than not, he says, it’s due to pain.

Dogs in pain may appear agitated, lose their appetite, act “dull,” experience lapses in housebreaking or start licking a specific area of their body, notes Karas, while “cats are really, really good at pretending that nothing is wrong.” But if you took a hard look at your cat, you might see signs that indicate pain: rapid and shallow breathing, poor or no grooming, decreased appetite, lapses in litter box training and retreating to quiet areas of the house for long periods.

**CASCADE OF PROBLEMS**

Aside from the fact that no pet owner wants an animal companion to suffer, you should be vigilant to signs of pain for other reasons.

Pain in cats and dogs (as in humans) causes other complications and can impede recovery from illness, surgery or injury. Pain spurs the body to release the hormone cortisol, which increases the heart rate, slows digestion, impairs sleep and reduces blood flow needed for healing.

Over time, pain also disrupts the nervous system, causing changes in the spinal cord and brain that make people and pets more susceptible to pain. Chronic pain affects the region of the brain that modulates human and animal responses to pain, creating more sensitivity, which in turn destroys still more brain matter that regulates pain—a vicious cycle. Chronic pain also gives the nervous system way too much practice at transmitting pain. The longer that nerves carry pain messages along their routes, the more efficient those pathways become at conveying that message.

“Chronic pain is like water damage to a house,” says Daniel Carr, a professor at Tufts University School of Medicine and director of its Pain Research, Education and Policy degree program. “If it goes on long enough, the house collapses. By the time most patients make their way to a pain clinic, it’s very late.”

Such was the case for Linus, a 4-month-old kitten that went into a downward spiral after being declawed. The kitty seemed a little off when he first got home from the clinic, recalls Lynn Crystoff of Worcester, Mass. Within a couple of months, though, Linus was in such agony that he couldn’t walk or use the litter box.

“I felt horrible. It was like I had stolen his kittenhood away,” says Crystoff. “His days consisted of me taking him off the bed, him limping to eat and then me carrying him to the couch, where he spent the day sleeping.”

Crystoff took Linus to three veterinarians, but none could figure out how to help him. Eventually, Linus was referred to Karas, who says she had never seen an animal with such severe nerve damage. That meant that none of the pain relievers commonly used in cats would work, she says. Linus ultimately got relief with a combination of gabapentin, an antiseizure drug also used to treat shingles pain in people; amantadine, a human antiviral medication used to relieve some of the symptoms of Parkinson’s disease; and Prozac, which, like many antidepressants, seems to ease pain by elevating serotonin levels in the brain and spinal cord.

In-home physical therapy also helped the kitten’s recovery. Although the pain relievers allowed Linus to comfortably put weight on his paws again, the cat’s chest muscles had atrophied so much that he had to rebuild his furry pecs before he could walk. With Karas’ help, Crystoff trained Linus to touch her hand with his paw—in a way that strengthened his muscles—to receive a treat.

Linus still takes medications three times a week, but otherwise is a normal cat. The chatty part-Siamese loves to roam the house and jump onto windowsills, from which he carries on “conversations” with the neighbors. “I only hope he’s able to forget everything he went through,” says Crystoff.

He probably has, says Karas, who notes that when it comes to pain, our pets’ cognitive differences from us are a blessing and a curse. People can be reluctant to seek help when they hurt, she says. “One problem with humans is that there’s an idea that suffering brings you closer to God. Or we worry we’ll get hooked” on pain drugs. “Our pain is also worse in certain circumstances,” adds Karas.

“For example, pain from a C-section probably won’t hurt as much as pain from the same incision for cancer surgery to remove your uterus, because it is a happy event to have a baby and a sad one to have cancer.”

“Animals don’t know any of that stuff,” says Karas. “Animals just know, ‘I hurt.’ Maybe their pain is worse because they can’t know if they are ever going to feel better.”
She ain’t what she used to be now that horses are living longer and healthier thanks to advances in geriatric equine medicine

BY MICHAEL BLANDING


STRAINS OF TCHAIKOVSKY'S "DANCE OF THE Sugar Plum Fairy" filled the stadium as all eyes turned to the handsome brown Dutch warmblood on the dressage ground below. For the next few minutes, spectators at the London Olympics watched as the horse, Parzival, seemed to float above the dusty ground, legs wrapped in tape like ballet slippers beating perfect time with the music. When the dust had settled, the horse and his 33-year-old rider, Adelinde Cornelissen, had achieved a new Olympic record for the Netherlands, and eventually, the silver medal in individual dressage.

It wasn't surprising that Parzival did so well in the competition—he was the top-rated dressage horse going into the event. What was somewhat surprising was the equine athlete's age: 15, the equivalent of 53 in human years.

More amazing still was the success of even older horses in the equestrian events at the 2012 Summer Olympics. Of the 50 horses that competed in dressage, a quarter of them were age 15 or older. The individual bronze winner, Mistral Hojris, was 17. Parzival's partner on the bronze-winning Dutch team was 18. It was a similar story in the eventing competition, which combines dressage, cross-country and show jumping: two out of the three horses on Germany's gold-medal-winning team were over 15, and one on the bronze-winning New Zealand team was 20.

When you consider that a human gymnast is generally past her prime at 16 and a basketball player is pushing retirement at 30, these equine athletes are treading on durable superstar territory. It's all the more remarkable given that just a short time ago, 20 years was considered the limit for a horse's life span.

"We used to say 20 was the end," says Mary Rose Paradis, an equine veterinarian and associate professor of clinical sciences at the Cummings School of Veterinary Medicine. "A lot of times, owners wouldn't spend any money on them after that. They'd retire them and let nature run its course." Within the last two decades, however, there has been a sea change in thinking about geriatric horses. Much like human medicine, equine medicine, including nutrition, dentistry and the treatment of diseases and conditions common in older horses, has vastly improved, to the point where horses are living well—and remaining healthy, active and even athletic—into their 20s, 30s and beyond.

LONG-TERM RELATIONSHIP Horses' long life spans make them very different from other companion animals, such as dogs and cats. "The oldest horse I ever treated was 51 years old," says Nick Frank, a professor of large animal internal medicine and chair of the department of clinical sciences at Tufts. "That is a tremendous amount of time to spend with one animal." The long-time relationship between owners and their older horses can make them especially invested in their care, says Paradis, who specializes in newborn and geriatric horses—in part, for the same reason. "The thing that ties the two together is the bond that people have with them," she says. "People become very attached to a newborn foal—but for older horses, you have owners who have owned them all of their lives."

That is certainly the case for Anne Sobel, who was 12 years old when she met her horse O.P. (Ocean Paint), an American Paint Horse, 25 years ago. Now she is 37, and he is 31. "He is the love of my life, he really is," she says. "I made a commitment when I was about 16 years old that we were in it for life. We have grown up together, and he's absolutely part of my family."

In the last few decades that enduring bond between older horses and their owners has translated into a renewed commitment to their care. Paradis and her student at the time, Margaret Brosnahan, V02, conducted a study of geriatric horses between 1989 and 1999 and found nearly a sixfold increase in the number of horses over age 20 that were coming to Tufts' Hospital for Large Animals for care—a jump from 2.2 percent to 12.5 percent of the hospital's total equine caseload. Anecdotally, Paradis believes that number has continued to increase in the decade or so since that study. In a second study, Brosnahan and Paradis found that 10 percent of horses over the age of 20 were still used in competitions.

Probably the top reasons for the increase in the geriatric equine population are advances in nutrition and dentistry, which have helped combat such gastrointestinal disorders as colic, which Paradis and Brosnahan found was the primary cause of illness in elderly horses. Another cause was musculoskeletal issues, most of which were degenerative and resulted in arthritis. The most specific condition affecting the older horse is a hormonal disease called PPID (pituitary pars intermedia dysfunction), better known as equine Cushing's disease. Again, there have been significant improvements in detecting and treating PPID over the last decade.

EAT WELL, LIVE WELL While better nutrition might not seem like a medical breakthrough, it has turned out to be important in increasing horses' life spans—mostly because of dental problems. "The hypsodont teeth continue to grow out through a horse's life, so by age 20, the roots are very shallow," Paradis says. "By 30, horses are starting to lose teeth" and are unable to sufficiently grind their normal feed of grass and hay. Companies have started to make special food for senior horses in which the nutritional components are extruded into a softer feed, promoting better digestion.

"There is this real wisdom in an older horse.
When we go out riding . . . we just go out and enjoy the adventure together." —Anne Sobel
Perhaps equally important are changes in caring for the teeth themselves. Horses are naturally adapted to dining on grass, which contains a small amount of silica that “polishes” teeth into even shapes. Domestic horses raised on hay or alfalfa, however, may experience uneven tooth wear, developing ridges and sharp points that can cause cheek lacerations and severe pain later in life. For years, veterinarians have used a tool called a hand float to rasp these irregularities, a laborious process that was not done often enough or well enough to reach all of the teeth. With the development of the power float, a drill-like tool with a diamond-headed grinder, veterinarians have been able to provide better care for teeth, especially the hard-to-reach back teeth, and extend a horse’s ability to chew comfortably. “Dentistry has been the limiting step for some of these older horses,” says Frank. “If you combine advances in dentistry and advances in nutrition, you get rid of two of the major problems that are life-limiting for horses.”

Another problem that has struck down good horses late in life is lameness or other musculoskeletal problems caused by fractured bones or lesions in tendons. Here, too, there have been significant developments that have increased the chances an older horse will recover from such conditions. For years, for example, veterinarians have been using steroids to reduce joint inflammation caused by arthritis or other maladies, but conventional wisdom was that using too many steroids could damage cartilage and weaken the joint over time. More recent studies, however, have shown that not all steroids are created equal. One in particular, triamcinolone, has been shown to actually protect joint cartilage when given in small doses. “Historically, you say if you put too many steroids into a joint, you’d trash it,” says Jose Garcia-Lopez, an equine surgeon at Tufts, “but we have learned that certain steroids are better than others, and if you use them in low concentrations, they can have protective effects.”

Garcia-Lopez specializes in arthroscopic surgery, a minimally invasive technique that opens up a tiny keyhole in the joint through which veterinarians operate, using television monitors attached to cameras in their instruments to guide them. While the general techniques of the surgery haven’t changed (outside of using higher-definition TV monitors), Garcia-Lopez says that there has been a change in the willingness of surgeons to perform such procedures on older horses. “Just because a horse is 22 or 23 doesn’t mean he won’t benefit from having his knee cleaned up,” he says. “If you have a fit horse, even if he is older and has an injury that can be repaired arthroscopically, you have a good chance of being able to return him to his previous level of fitness.”

Aiding that perception have been cutting-edge techniques that have helped horses in the healing process, using elements from their own bodies to speed recovery. In the last decade or so, veterinarians at Tufts and elsewhere have achieved success by extracting equine stem cells from bone marrow or fat, culturing them outside of the animal and then reintjecting them in places...

"If you combine advances in dentistry and advances in nutrition, you get rid of two of the major problems that are life-limiting for horses.” —Nick Frank

...where the horse has suffered an injury. The regenerative properties in the stem cells help form new cells to bind the joint together. More recently, vets have seen similar success using platelet-rich plasma (PRP), a substance derived from a horse’s own blood that is high in growth factors, which can interact with injured cells and spur tendons and ligaments to more quickly regenerate. “We’ve been using [PRP] in older guys with encouraging results,” says Garcia-Lopez.

OLD AND ACTIVE
In all of these cases, says Garcia-Lopez, the key to whether older horses benefit and recover from surgery is their overall level of fitness. When horses age, he says, it’s important that they remain active, even if it means just regular walks during the week. “You want to avoid that loss of conditioning,” he says. “If they have a prolonged period of time off, it’s much harder to regain that level of fitness again.”

If horses are exercised routinely, there is no reason that they cannot stay fit into old age. Sobel and her horse O.P. have gone trail-riding for years and still ride regularly three days a week, though they’ve cut back on their trail time. Now, instead of riding for several hours, they’re out 45 minutes at a time, and Sobel has learned to listen to her horse about when he is ready to head back to the barn. With small changes in food and blanketing at night, O.P. had been remarkably healthy until this past year, when he came down with several illnesses, including the hormonal disease PPID, which affects roughly one in seven horses over age 15.

With PPID, small tumors form on the pituitary gland, causing large amounts of hormones to be released into the bloodstream. PPID creates “many different changes throughout the horse’s body,” says Frank, a specialist in the disease. Chief among the symptoms is accelerated hair growth, which can give horses an unnaturally thick, shaggy coat that refuses to shed out. Other symptoms can include excessive urination, fatigue, abscesses, infections and laminitis. “The question is why does it happen in some horses, while others can go to 30 years of age with no problem?” he says.

Recent evidence has shown that obesity and insulin resistance predispose horses to Cushing’s disease by inducing oxidative stress that can accelerate tumor growth. One of the difficulties in treating the disease has been detecting it soon enough. “The real challenge has been developing a test to diagnose it in the early stages,” says Frank, a pioneer in using a new thyrotropin-releasing hormone test to detect early stage PPID. The test stimulates hormone production by the pituitary gland...
Older horses are great animals for many reasons—they’re smart, generally even-tempered and often trained in special skills such as jumping, polo or dressage. But as they age, the special care they require can get expensive.

Because horses inhabit a gray area between companion animals and work animals, they are vulnerable to being abandoned or given up to a shelter when an owner believes the animal has outlived its usefulness. “Some people have horses all of their lives, use them for competition or pleasure and then when they can no longer do the job, they keep them anyway,” says Mary A. Koncel, a clinical instructor at the Center for Animals and Public Policy at the Cummings School of Veterinary Medicine. “There are other folks who get into horses, but it’s more of a passing interest. After five or 10 years, they decide they no longer want them.”

In the United States, more than 100,000 horses have been abandoned or are homeless. As the economy has slumped and feed prices have risen, shelters have become full to bursting. Others are simply let go to roam the plains out West. “It’s a horrible mess of bad consequences,” Colorado State University animal sciences professor Temple Grandin told Time magazine. “People are turning them loose because of the decline in discretionary spending.”

For her master’s degree in animals and public policy at Tufts, Koncel conducted a study on the adoption of wild horses in New England, collecting demographic information and assessing other factors that might contribute to successful adoption. In addition to continuing that research, she’s also trying to raise awareness about the plight of older horses that may be in great health but in need of a home.

That’s true of O.P., who overcame both impaction colic (essentially constipation) and peritonitis (an inflammation of the abdomen) this past year, despite warnings by his vet he might not survive. Now he is on medication for PPID, and Sobel plans on resuming their trail rides in the spring. “He’s been called old for half his life now, but I don’t think he really grew up and matured until age 20,” she says. “There is this real wisdom in an older horse. When we go out riding, I don’t have to worry about training him or him being unpredictable. We just go out and enjoy the adventure together.”

Michael Blanding is a freelance writer in Brookline, Mass.
Are antibiotics used in meat production fueling the growth of drug-defiant superbugs? The battle heats up.
You Can’t Resist

BY LINDA HALL PHOTOGRAPH BY VITO ALUIA

ANTIBIOTIC RESISTANCE COULD BRING ABOUT THE NEXT GLOBAL CRISIS—a world where “strep throat…could once again kill,” warns the World Health Organization. Few experts dispute the dangers of infections that cannot be controlled. The question—debated in courtrooms and on Capitol Hill—is whether America’s industrialized farms bear significant blame.

“Lots of resistant bacteria travel from farm to table,” says Tufts microbiologist Stuart B. Levy. Studies have found high levels of resistant bacteria in supermarket samples of beef, pork and poultry that can cause food-borne illnesses in people who mishandle the raw meat or eat it undercooked. But meat is not the only route of transmission. Resistant strains of bacteria have been found in industrial farm workers and their families; in the air, water and soil around industrial farms; and even in the flies nearby and on cars that have traveled behind trucks bringing animals to slaughter. An estimated 90 percent of antibiotics fed to food animals are excreted in their waste, and that manure is often sold as fertilizer products, some of which are marketed as “organic compost.”

Under fire is a longstanding farming practice of routinely feeding low (“subtherapeutic”) doses of antibiotics to food-producing animals—not because they are sick, but to prevent disease and speed their growth. Chronic exposure to antibiotics in humans, animals and the environment, says Levy, accelerates the creation of resistant bacteria and infections against which the so-called wonder drugs of the 20th century are becoming powerless.

Levy, a modern-day Paul Revere for antibiotic resistance, has been sounding the alarm for more than three decades. He says misuse and overuse of antibiotics by doctors and patients is a major problem. Doctors prescribing antibiotics for viral illnesses such as colds, patients insisting on getting those drugs and patients failing to finish their prescriptions have all given resistant strains a better chance to take hold. But Levy says the pure volume of antibiotics used on farms—some estimates say 80 percent of the antibiotics sold in the United States are for animals, not people—has scientists concerned about agribusiness’s contribution to a growing public health threat.

“Suddenly we get a report of a bacterial strain that is resistant to eight antibiotics, and you know that that occurred in animals [because it was isolated from meat samples], and it’s shocking that it even occurred,” says Levy, a professor at Tufts School of Medicine, president of the international Alliance for the Prudent Use of Antibiotics (based at Tufts) and author of The Antibiotic Paradox: How the Misuse of Antibiotics Destroys Their Curative Powers.

Levy says that one multidrug-resistant kind of staph infection—caused by methicillin-resistant Staphylococcus aureus (MRSA)—showed up in hospitals as early as the 1960s, before it and others like it emerged in the general population. “Now different strains are cropping up on farms. This is not a good sign,” he says, because it means resistances in bacteria harbored by animals could transfer to bacteria associated with people.

UNFAIR TARGET
Agribusiness, with wide support from veterinarians, has a different perspective. George Saperstein, professor and chair of environmental and population health at the Cummings School of Veterinary Medicine, says the industry is unfairly maligned, management practices are misrepresented and charges of antibiotic abuse are often erroneous and exaggerated.

Saperstein believes the industry generally uses antibiotics prudently, primarily to prevent disease from racing through flocks or herds on large-scale farms, which produce much of America’s food. Management practices on such farms have come under
fire for years, with charges that antibiotics are excessively and indiscriminately given to food animals so they’ll gain weight and grow faster, reducing costs, and to compensate for poor nutrition and the cramped conditions in which food animals spend their lives.

“The statement you hear a lot—that antibiotics are being used to substitute for good management or good sanitation—couldn’t be further from the truth,” Saperstein says. He is not suggesting zero problems or zero risk, but he says management practices at large farms are generally commendable.

While Saperstein acknowledges the presence of antibiotic-resistant bacteria on farms—as well as many other places—he says he has not seen enough “fingerprint” scientific evidence linking significant human disease outbreaks to multidrug-resistant bacteria strains that have emerged solely as a result of farming practices. He points to a Purdue University study that reviewed Denmark’s experiences since that country phased out antibiotics as livestock growth promoters in 1999. The study suggests that changes in resistance patterns in bacteria isolated from livestock have limited influence on resistance patterns in bacteria isolated from humans.

Saperstein and others are concerned that across-the-board prohibitions of the subtherapeutic use of any antibiotic may make it more difficult for farmers to keep their animals healthy and the food they produce safe and affordable.

Consumers who worry about antibiotics in meat often confuse “residue” with “resistance.” The FDA sets standards to ensure that animals brought to slaughter have undergone withdrawal periods to allow drug residues to clear their systems. Resistance poses different issues: Are there antibiotic-resistant bacteria in the meat that could sicken consumers? And are farming practices a major contributor to the pools of resistant bacteria in the environment? All sides agree antibiotic resistance is simply a force of nature. When bacteria are exposed to an antibiotic, some of the microbes are killed, but others—one with mutations that enable them to resist the drug’s effects—survive and multiply, passing along their protective mutations. The more an antibiotic is used or misused, the more likely new, drug-resistant strains will evolve. Concerns are intensifying about the speed at which this is happening. Some strains are already resistant to multiple antibiotics. They were perhaps helped along by bacteria’s recently discovered ability to exchange DNA. For example, those never exposed to an antibiotic can pick up genetic material from an unrelated resistant strain and mutate into a new strain that is also resistant.

Rebecca Klein, N08, the public health and agriculture policy project director for the Center for a Livable Future at Johns Hopkins Bloomberg School of Public Health, likens antibiotic resistance to climate change: “It’s relatively slow moving but potentially a huge crisis.” (See “The Big, Bad Bugs,” opposite page.) Klein says consumers unaware that agriculture is implicated in antibiotic resistance are less likely to protest. “There is a certain amount of trust, thinking that if this were really a problem, the government would do something about it. I think if the public were more aware, they’d be demanding a shift, and that shift would take place.”

On the list of things to be aware of: The Center for Science in the Public Interest documented 38 food-borne outbreaks between 1973 and 2011 in which the bacteria were resistant to one or more antibiotics. Last year 36 million pounds of ground turkey had to be recalled because of contamination by Salmonella Heidelberg, which is resistant to several antibiotics used in human medicine and in agriculture. That outbreak caused one death and sickened 107 people.

For the past 16 years, the National Antimicrobial Resistance Monitoring System, a collaboration of the Centers for Disease Control and Prevention, the FDA and the U.S. Department of Agriculture, has tracked data to determine whether antibiotic resistance is transmitted to humans through the food supply.

The organization’s 2010 report says more than half the ground turkey samples tested carried E. coli bacteria that were resistant to at least three classes of antibiotics. Nearly 30 percent of chicken breast and ground turkey samples contained Salmonella resistant to five classes of drug, and almost 29 percent of ground beef samples carried Salmonella resistant to six. This means that if consumers get sick, there are fewer and fewer drugs to treat them. One strain found in ground turkey samples, Salmonella Albert, was resistant to all eight classes of antibiotics for which it was tested.

Studies have even found significant amounts of resistant bacteria, including MRSA and E. coli, in meat labeled as raised without antibiotics. Some speculate the meat might have picked up the bacteria from workers or at processing plants if the equipment was not sterile. Because the creation and transmission of resistant bacteria amount to an invisible web that scientists are still trying to fully untangle, activists say it’s time to curb antibiotic use on farms and in all of society.

“One of the things we say is that you can’t shop your way out of this problem,” says Sarah Borron, N07, a researcher at the nonprofit Food and Water Watch. “It is important to buy local, organic…and it’s certainly good to support producers who are choosing not to use antibiotics,” she says, but the most powerful avenue for change is in the hands of the government, which can mandate restrictions on antibiotic use.

WHERE ARE THE REGULATORS?

Public health and consumer advocacy groups focused on agriculture’s role in drug resistance are increasingly frustrated by what they say is government’s failure to act, so frustrated that they filed suit in an effort to force more regulation. Last March a federal judge sided with those groups and ordered the FDA to follow through on restrictions against two classes of antibiotics widely used in agriculture—tetracycline and penicillin. More than 35 years ago, the FDA proposed prohibiting the use of these two drugs to promote animal growth because of concerns about antibiotic resistance. But the agency backed off, critics say, because of political and industry pressure. Now the court has ordered the FDA to proceed with that ban, although the drug manufacturers first will have the opportunity to prove their use in agriculture is not creating resistances that are harmful to public health.

In the coming months and years, this and other developments may substantially change how farmers raise the animals that produce our food. Last April the FDA announced that it is asking drug makers to voluntarily change the labels that show how
their antibiotics can be administered to animals, eliminating their use for promoting growth while retaining their use in treating and controlling disease. And instead of allowing farmers to buy antibiotics over the counter in bulk, as they have done since the 1950s, the FDA is recommending that farmers get prescriptions for the drugs from veterinarians. The aim of these federal “guidance documents” is to compel farmers to prove they need to treat or prevent specific illness in their animals, rather than use antibiotics indiscriminately to boost production. The FDA says it has received commitments from drug makers for its voluntary plan, which would be phased in over three years.

Klein says the federal ruling is encouraging because “historically, it has seemed that the power and money from industry have won out [over] laws and regulations.” She is disappointed, however, that the FDA produced guidance documents, which “are just that, guidance documents. If we are going to protect public health, actual regulations need to be in place with funding to ensure compliance.”

Borron’s assessment is more direct: “Anything less than a complete ban on the subtherapeutic uses of antibiotics in livestock is insufficient.”

At the congressional level, proposed legislation would force the FDA to retract approvals for uses of animal feed for any of seven classes of antibiotics determined to create resistances harmful to human health. But the legislation, the Preservation of Antibiotics for Medical Treatment Act, has been repeatedly introduced since 2003 and has yet to make it to a vote. Fingers point at intense lobbying by big agriculture and big pharma.

Also under the microscope are scattered restrictions the FDA has already imposed. In 2005 the agency banned the use of a class of antibiotics called fluoroquinolones in poultry production. The FDA said the drugs’ use in poultry production had spawned foodborne fluoroquinolone-resistant Campylobacter infections in humans, a gastrointestinal illness that can be life-threatening in patients with compromised immune systems.

Last January the FDA restricted another class of antibiotics, called cephalosporins, from being used indiscriminately in animal agriculture for disease prevention and growth promotion. “It is critical to preserve the effectiveness of these drugs,” the order said. Cephalosporins are used to treat pneumonia, strep throat and other infections in humans.

Yet cephalosporins and fluoroquinolones were not as widely used in animal agriculture as are tetracycline and penicillin. “The FDA seems to be sending mixed signals,” Borron says. “On one hand, it has banned subtherapeutic uses of two major classes of antibiotics [fluoroquinolones and cephalosporins], but it has taken a lawsuit to make the FDA address a proposal to ban the same uses in two other major classes [tetracyclines and penicillins]. And the FDA insists that voluntary efforts in cooperation with industry will work, all while new scientific evidence calls into question whether producers are even following the legal bans,” Borron says.

That new evidence, a study released in April by the Center for a Livable Future and Arizona State University’s Biodigesn Institute, found that fluoroquinolones are still showing up in feather meal, a byproduct of poultry production used as feed for farm animals and fish. The study, in which investigators examined samples from the United States and China, found traces of pharmaceuticals and personal-care products, including caffeine and the ingredients in Tylenol, Benadryl and Prozac, which leads George Saperstein, the Cummings School veterinarian, to question whether some of the drugs were introduced not at farms but by renderers who process animal parts into fertilizer and feed.

Saperstein nevertheless advises the farm industry to make changes ahead of regulation: “If the consumer is given the impression that the industry is doing something wrong and the FDA is trying to stop them,” it is more damaging than “proactively saying we’re going to stop using subtherapeutic antibiotics.

“Agriculture has always rapidly responded to consumer preferences… it’s a free-market product,” and farmers want to please consumers, he says. Changes in antibiotic use will create incentives for new technologies and alternatives, including more and better vaccines, he says. But Saperstein worries that some small farmers, especially those in remote locations with limited access to a dwindling number of veterinarians who specialize in caring for large animals, might not “survive the shakeout” of certain mandates and financial pressures.

Klein sympathizes with the challenges farmers face. “We need laws that protect human health,” she says, “and we need to find ways to support farmers’ transition to production methods that protect essential drugs and biodiversity.”

Linda Hall is a freelance writer in Hopkinton, Mass.
Can cats help advance cancer treatment where mice have failed?
by Michael Blanding

The traditional means of testing a potential treatment for cancer is to get a lab full of mice and conduct controlled experiments that attempt to prevent tumor growth. In the late 1990s, such studies produced a new medication that choked off the blood flow to malignant cells. It was hailed as a wonder drug. “There was literally a headline in the New York Times saying scientists would cure cancer within two years,” says Elizabeth McNiel, a veterinary oncologist at the Cummings School of Veterinary Medicine. “It was huge.”

But once researchers tested the drug outside the lab, in human clinical trials, it did not produce such miraculous results. Drugs that cut off blood supply to tumors “have been disappointing [in treating] many types of cancer,” says McNiel. “There seems to be a really big disconnect between what we observed in the mouse and what was observed in humans.”

In what could signal a new direction for cancer research, McNiel hopes to bridge that disconnect by studying the disease in cats. The work could produce breakthroughs to advance cancer treatment in cats and humans.

As companion animals, cats live in the same environments as their owners, and the cancers they develop tend to occur in similar ways to those in humans. Whereas mouse cancers usually are small and contained, feline cancers come in various sizes and spread throughout the body.

“We think that [human and feline cancers] may be parallel in their underlying causes,” says McNiel. Studying cancer in domestic cats may produce more reliable results than using lab mice and could result in more effective treatments in the long run.

McNiel studies squamous cell carcinoma, a cancer of the mouth typically caused in humans by tobacco use, though increasingly by human papillomavirus (HPV). It is also one of the most common feline cancers. Squamous cell carcinoma is usually quite aggressive in people and animals, metastasizing quickly and resisting traditional treatments. “We’ve treated these cats with surgery. We’ve treated them with radiation, and the average survival time is just a few months,” says McNiel.

Those grim statistics make this cancer a good candidate for study in a clinical environment, McNiel says, because pet owners might be more willing to consider a nontraditional therapy when faced with such dismal survival rates.

In research funded by the Morris Animal Foundation, McNiel is investigating the potential of a drug used to treat human cancer. The designer peptide called Anginex contains 33 amino acids that bind to another protein in the blood vessels that supply tumors with growth-promoting nutrients and oxygen. The bound drug helps switch off the flow of blood to the tumor cells, essentially severing their lifeline.

Thus far, McNiel and her colleagues have conducted successful safety trials to
ensure that the drug won’t harm cats—a necessary first step in research with pets. They tested the drug in the laboratory, using feline blood vessel tissue, as well as in a dozen cats being treated for squamous cell carcinoma at the Foster Hospital for Small Animals at Tufts.

Now the researchers are preparing for a larger study, in which 25 cats will receive the drug to determine whether it does indeed shrink their tumors. Unlike large clinical trials where several hundred animals might be treated to statistically prove the effectiveness of a particular drug, this small-scale study is more qualitative, examining how the drug works and how it might be developed further, McNiel says.

“We know these therapies have not been very successful in humans, and we have some ideas about things that might be barriers to success,” she says. It could be, for example, that simply choking off the blood supply negates the ability of other treatments, such as chemotherapy, to reach tumors, thereby actually encouraging them to spread. “This larger study is not to show that this treatment is superior to another treatment,” McNiel says. “It’s really to try and understand the biology of what this treatment actually does.”

One possibility is administering the drug in concert with other therapies, such as radiation or chemotherapy, potentially augmenting their combined ability to fight the disease. Another avenue McNiel is exploring is to reverse the drug’s function to actually improve blood flow to the tumor. While that might sound counterintuitive, it could, for example, make chemotherapy more effective by allowing more chemicals to attack the tumor. Once the initial studies are done, McNiel says, the researchers can move on to research that would use Anginex in addition to conventional treatments.

Michael Blanding is a freelance writer in Brookline, Mass.

A BIRD IN PAIN

Although there are more than 10,000 species of birds in the world, when an avian patient needs pain medication, veterinarians often rely on one drug, butorphanol.

A type of opioid, the family of drugs that includes morphine and codeine, butorphanol deadens pain by working on the brain’s kappa opioid receptors, which pigeons possess in great quantities.

However, “taking results from pigeons and saying that applies to [all birds] is like saying that you should dose a cow based on guinea pig data,” says Jana Mazor-Thomas, V13, who is researching pain management in red-tailed hawks while she pursues a master’s in comparative biomedical sciences and her D.V.M. at Tufts. The predatory red-tailed hawks are frequently treated at the Tufts Wildlife Clinic for injuries ranging from gunshot wounds to broken legs and wings.

Supported by grants from the National Institutes of Health and the National Wildlife Rehabilitators Association, Mazor-Thomas is studying hawk behavior, looking for one or more activities—head movements, foot shifts and beak clacks, for example—that might consistently signal pain. She also analyzed brain tissue from birds that were euthanized to identify the regions of the brain that control pain.

The way the hawks move their heads may provide a basis for measuring pain in other avian patients, Mazor-Thomas says. “Birds [visually] track things a little bit differently than mammals do. Their eyes aren’t quite as mobile in the socket, so they tend to move their whole head,” she says. “You can count each of those head movements, and they seem to be very reliably altered by pain.” If head movement does indeed provide a way to assess pain, it would help avian veterinarians test different medications or dosages to achieve the best combination for relief.

Preliminary results from her tissue studies show that two types of opioid receptors in hawk brains, kappa and mu, are found in regions of the brain known to affect pain intensity in mammals and that red-tailed hawks may have a predominance of mu receptors. If that is indeed the case, “there’s some question as to whether [butorphanol] is really an ideal treatment,” says Mazor-Thomas, who hopes her research “will help us understand pain control in birds species by species, just like any other animal.”

—GENEVIEVE RAJEWSKI
CATS HOLD THEIR OWN COUNSEL. INDEPENDENT, solitary, even mysterious, they’ve long fascinated their owners with their aloofness. But the very qualities that appeal to their human companions can also make it difficult to tell when they’re sick. One of the most common feline ailments, for example, is heart disease, which affects 10 to 15 percent of cats. All too often, though, the signs are noticed too late.

“One of the challenges with cats is that they hide things very well,” says Lisa Freeman, J86, V91, N96, head of the nutrition service at the Cummings School of Veterinary Medicine. “They often don’t get taken to the vet and find out they have heart disease until the cases are more advanced.” Even when heart disease is diagnosed, owners still can find it difficult to tell how much their pets may be suffering. “They might keep eating and acting normally,” she says, “but when owners look back, they may realize they missed quite subtle signs.”

For that reason, Freeman and Tufts veterinary cardiologist John Rush have developed a questionnaire for cat owners and veterinarians to determine how heart disease affects feline quality of life. The survey, known as CATCH (Cats Assessment Tool for Cardiac Health), will be helpful in testing new treatments for heart disease.

Studies of humans with heart disease have found a relationship between quality of life and survival rates. In companion animals, where euthanasia is an option, quality of life can help owners make end-of-life decisions about their pets. Studies published in the Journal of Veterinary Internal Medicine in 2010 and the Journal of the American Veterinary Medical Association (JAVMA) in 2008 found that 93 percent of cat owners and 86 percent of dog owners, respectively, would trade a longer life for their pets for a shorter, higher-quality one. Another study by Freeman and other researchers published in JAVMA in 1999 found that 79 percent of dogs that were euthanized were considered by their owners to have had fair or poor quality of life—most likely the case with cat owners as well. Seven years ago, Freeman and Rush helped design another questionnaire to help owners of dogs with heart disease assess their pets’ quality of life.

The 18-point canine questionnaire asks owners to identify symptoms—difficulty breathing, coughing and trouble eating and sleeping—as well as behavioral changes, such as less time spent with family and the inability to play fetch. Called FETCH (Functional Evaluation of Cardiac Health), it rates dogs on a scale of 0 to 5—with 0 meaning “not at all” and 5 meaning “very much”—for an overall score of 0 to 65.

Adapting the canine questionnaire for cats proved challenging. While some criteria, such as difficulty breathing, could signal heart disease in both cats and dogs, others, such as coughing, is uncommon in cats with cardiac problems. Other behaviors, such as difficulty taking medicine or seeking out solitary locations, could point to cardiac problems in dogs, but are common in healthy cats.

Freeman, Rush and their colleagues piloted the questionnaire with owners of 75 cats at three veterinary hospitals: Tufts’ Foster Hospital for Small Animals and hospitals in Pennsylvania and California. After tweaking some of the questions, they administered it to a larger group of 275 cat owners. In the end, the researchers found a close correlation between the results of their survey and the International Small Animal Cardiac Health Council classification for feline heart failure. They published their findings in JAVMA last spring.

The CATCH score also provided broader information about the general well-being of cats beyond the diagnosis of heart disease—data that could offer a better basis for determining the effectiveness of new drugs and other treatments in clinical trials. “We are really working on better ways to diagnose, prevent and treat heart disease in cats, and this is just one of our tools to get to that goal,” says Freeman.

In addition to its benefits for clinical research, Freeman says cat owners could use CATCH to assess overall quality of life in their pets. In fact, the CATCH score might be less important than the questions themselves, which may give owners and their veterinarians a jumping-off point for conversations about the well-being of an animal. “A lot of vets have expressed interest in this because cats are so hard to evaluate,” Freeman says. The CATCH questionnaire may make cats a little less mysterious—at least when it comes to diagnosing heart disease—but no less captivating to owners who care about their pets’ quality of life.

—MICHAEL BLANDING

FOR MORE ABOUT CLINICAL TRIALS BEING CONDUCTED AT THE CUMMINGS SCHOOL, INCLUDING HOW TO PARTICIPATE, VISIT GO.TUFTS.EDU/VETTRIALS.
Tufts: The Next 10 Years

Strategic plan will create a university road map by Taylor McNeil

Tufts has launched a strategic planning initiative that will identify priorities and create a road map for where the university aspires to be in 10 years.

“This is an opportunity for us, as a community, to envision a trajectory for Tufts—where it needs to be, and should be, in a decade’s time,” said President Anthony P. Monaco, who has asked Provost David R. Harris to lead the initiative.

“The process of creating a strategic plan allows you to learn more about yourself as an institution,” said Monaco. “We will engage with the community—faculty, students, staff, alumni, trustees, advisors and friends—to come up with a direction we believe is important and meaningful for Tufts. More broadly, strategic planning is an opportunity for us to think about Tufts’ mission, its role in the world and our values and priorities.”

Monaco and Harris sat down with Tufts Veterinary Medicine to talk about the role of strategic planning in advancing Tufts.

What is the purpose of strategic planning?

Provost Harris: This process will explore what the Tufts community sees as our core opportunities, our core challenges and the barriers to our success. A strategic plan will enable us to make decisions that are aligned with shared goals instead of what any one of us might think is an appropriate direction for Tufts.

President Monaco: If the planning process indicates that it’s important for Tufts to increase its impact on society, for example, then it will be up to the leadership and faculty at each of our schools to consider how they can contribute to that objective.

Why is it important to do this now?

Harris: We have a relatively new administration, and it is important for the president and me to hear from the community about the opportunities and challenges that face us and for the community to hear from us about how we will synthesize their input and develop aspirational goals for Tufts University.

Why have you named the initiative “Tufts: The Next 10 Years”?

Harris: It reflects the idea that we are always looking 10 years out, and regularly asking whether we are on the path to achieving our goals. Strategic planning is not something we do once and then move on. This will be an ongoing activity.

What other areas will the strategic plan address?

Monaco: Many strategic plans focus on core values, and so will ours. The plan will contain sections on teaching and learning, research and scholarship and Tufts’ impact on society. We will look at our civic engagement mission and our role in economic development through applications of our research. Then there are what I call challenging areas for the future, things like online learning, entrepreneurship and innovation, interdisciplinary and other modes of research and the student experience. We need to think about the direction we are going to take as an institution to make us stronger in these areas.

How was the groundwork laid for this?

Monaco: During my first year, I spent a lot of time listening to and meeting faculty, alumni, students and staff to understand their perspectives on Tufts. Out of that came issues I thought were essential to laying the groundwork. One was diversity—recruiting and retaining students, faculty and staff of diverse backgrounds and creating an environment of inclusion. Another was being good stewards of the environment. And finally was thinking how Tufts can have a larger impact in the world, in particular how collaborative research, teaching and learning across all our schools can help solve some of society’s greatest challenges.

How long will this take?

Harris: On the one hand, we want the plan done as quickly as possible, because the absence of a plan means that we are making decisions without the benefit of a shared vision. On the other hand, we want to proceed slowly enough so that everyone has an opportunity to be heard. That said, we’re aiming to complete the plan by the fall of 2013. But this is a living document. Once a year we will revisit the plan, systematically asking what is working, what isn’t, what new challenges have arisen and how we can more effectively pursue our goals.

How can the Tufts community get involved and stay informed?

Monaco: Once the plan gets to a certain draft level, we will put it online so everyone can tell us what they think. We will also be engaging with our trustees and alumni and listening to their perspectives. We want everyone to have a say.

Learn more at strategicplan.tufts.edu.
Temple Grandin says she’s often asked if food animals are afraid when they go to slaughter. The answer, says the internationally renowned animal scientist, is both yes and no.

"Some may say it’s anthropomorphic to say [that animals experience] fear," Grandin, a professor at Colorado State University, said at an audience at the Cummings School during a visit last summer. "But they do. The evidence that supports that is all over the neuroscience literature."

Animals and people share the same neurotransmitters and emotional systems, she said, including dopamine, a chemical linked to play and learning, and oxytocin, the so-called love hormone associated with sex, empathy and nurturing. "The main difference between human and dog emotion is complexity," said Grandin, who developed a less-stressful system for handling beef cattle at processing plants. "[People] filter emotions through a giant computer upstairs. A dog doesn’t have as big a computer. [An animal] lacks higher-order association."

While cows, pigs and other meat animals do not understand what is about to happen to them at the slaughterhouse, Grandin said they often experience anxiety brought on by the unfamiliar surroundings at meat-processing facilities—a dark entryway, light reflecting on the floor, a hanging chain and other "things people tend not to notice.”

Since the 1970s, Grandin has made a career out of eliminating these stressors for animals bound for our plates, often by literally climbing into a chute to view the process from a four-legged perspective. The solutions are often simple, such as lighting an entryway to eliminate foreboding shadows or installing nonslip mats so the animals can walk without fear of falling.

This kind of attention to detail, she said, means the difference between a meat animal’s last moments being relatively peaceful or filled with dread.

"For those of us working in animal welfare, [Grandin] has been one of our heroes for a long time," said Emily McCobb, V00, M.S.02, assistant director of Tufts’ Center for Animals and Public Policy. "The work she does makes a difference for animals in the real world."

Named one of the world’s 100 most influential people by Time magazine in 2010 for her work in livestock behavior and autism advocacy, Grandin said she uses her experiences as an autistic person to "relate to the very specific way that an animal thinks."

"If you want to understand animals, you need to get away from verbal language," she said. "Their is a world full of picture, sound, taste and touch memories. It’s detailed, sensory-based information."

Research shows that the normal human mind tends to eliminate details, while autistic minds tend to retain detail, she said. In developing recommendations for more humane treatment of food animals, Grandin said she employs highly specific mental images of “good stockmanship” and “animal cruelty” that she has gathered during hundreds of visits to farms and slaughter plants.

She has designed better equipment and facilities for handling livestock and trained feedlot managers about behavioral principles for handling cattle. She convinced many in the agricultural industry to pursue calmer and gentler techniques by showing them that a humane approach has economic benefits: better animal weight gain, less bruised meat and fewer accidents.

Most recently, Grandin developed a scoring system for assessing how cattle and pigs are handled that is used by
McDonald’s, Wendy’s and other large food corporations to improve animal welfare. Again, the system relies on pictures, or observable factors, such as counting the number of skinny or lame cows and tracking what percentage of animals vocalize (a sign of distress) or fall down.

“So many guidelines [for animal welfare] use ridiculous words like ‘properly,’ ‘adequate’ and ‘sufficient,’” said Grandin. “What do [these terms] even mean?”

Although Grandin looks like she must have grown up a cowgirl—convincingly attired in a spangled shirt, a red bandana knotted jauntily at her throat—she is a native of Boston.

During lunch with Tufts students pursuing master’s degrees in animals and public policy, she noted the Cummings School campus played an unexpected role in shaping her destiny.

Grandin’s mother visited the campus in North Grafton, Mass., when it was the site of a state mental hospital. She saw a group of naked autistic children “stimming”—rocking, spinning, flapping their hands and engaging in other repetitive behaviors—and resolved that her daughter would never be institutionalized. She enrolled Grandin in a speech therapy school three days a week and hired a nanny, who played turn-taking games with Grandin so the withdrawn girl couldn’t tune out completely.

“That saved me,” she said. “Otherwise, I wouldn’t be here now.”

### A PROMISING FUTURE FOR VETERINARY GRADS

With an estimated 191 million pets in the United States, but only 61,000 veterinarians, the future for the Class of 2012 is bright, John Berg, professor of clinical sciences, told the 92 graduates at the Cummings School’s 30th commencement ceremonies in May.

“We now recognize that the public demands and is willing to pay for very, very high-quality veterinary medicine,” Berg said. Pet owners spent $10 billion on veterinary care in 2011, he noted.

He urged the graduates to enjoy their success and never lose sight of what brought them to veterinary school in the first place. “Remember that every time you do something as simple as vaccinate a cat or spay a dog, you’re making a difference,” he said.

Earlier in the day, at Tufts’ all-university commencement ceremony, Eric Greitens, a former Rhodes Scholar and Navy SEAL who has been involved in humanitarian efforts around the world, urged graduates to match their passions to the world’s needs and find a way to be of service. “If you do that, life will not be easy, but you will have chosen for yourself a very meaningful adventure,” said Greitens, who was awarded an honorary degree.

Other honorary degree recipients were Tufts President Emeritus Lawrence S. Bacow; Bonnie Bassler, the Squibb Professor of Molecular Biology and Howard Hughes Medical Institute investigator at Princeton University; Cecilia Ibeabuchi, manager of the Boston Health Care for the Homeless clinic at St. Francis House; and Farooq Kathwari, chairman, president and CEO of Ethan Allen Interiors and director and former chair of Refugees International.

### Tufts Alumni

Together, we begin...

During a time of transition and expanding horizons for the university, Tufts Alumni is pleased to invite you to meet with Tufts President Anthony P. Monaco to hear about his plan for developing a road map for where Tufts aspires to be in the next 10 years.

During the first year of his tenure, Tufts Alumni hosted 15 receptions to introduce the university’s 13th president to alumni and friends around the world. This year, President Monaco will be visiting a number of European cities as well as cities in Arizona, Colorado, Connecticut, Maine, New Jersey, Pennsylvania and Rhode Island.

All members of the Tufts community are invited to attend any of these special events to meet President Monaco and hear his thoughts on Tufts today and his vision for the future.

As the president’s itinerary is developed, you can find event dates and locations at tuftsalumni.org/president.
It’s been more than 20 years since Andrew Kaplan graduated from the Cummings School of Veterinary Medicine, but he has not forgotten how one administrator, Barbara Berman, helped him secure the financial aid he needed to pay his tuition and make ends meet.

That support, he says, and the superb education he received, helped him achieve the high standards he’s set for his professional and personal success.

Kaplan, V90, runs his own practice, City Veterinary Care, on New York’s Upper West Side, which New York magazine named the “best private veterinary practice in New York City” in 2002 and 2006. He founded the Toby Project, which aims to make New York City a no-kill community by offering free and low-cost spay and neuter services to low-income pet owners and feral cats.

So what makes this civic-minded vet tick? “Passion,” he responds. “I love what I do on a daily basis, so I’m grateful that Tufts took a chance on me.” When he learned that financial aid was a major priority for the Cummings School, he didn’t hesitate, establishing the Dr. Andrew Kaplan Annual Scholarship, which will give preference to a fourth-year student with an interest in shelter medicine. The first recipient was Matt Gordon, V12 (see story, opposite page).

“I was happy to step up,” Kaplan says. “And when I learned that Barbara [now assistant dean of student affairs] was on the selection committee for the scholarship, everything came full circle.”

Because the average debt of a graduating veterinary student now runs close to $155,000, Kaplan’s generosity enables the Cummings School to offer financial aid packages to attract top students. The gift is an extension of his personal philosophy: "When an animal comes through my door, regardless of financial backing, I am going to heal it,” he says. “In life we only truly possess two things: our health and our relationships. To have been given the skill to protect an animal’s health means
Matthew Gordon, V12, the first recipient of Andy Kaplan’s scholarship, sizes up his career choice with words that could be those of his benefactor: “It’s a calling. This is what I have to do.”

He’s on his way, interning at Blue Pearl, a specialty and emergency veterinary clinic in New York City. He says the job validates the choices he’s made along a winding path of self-discovery.

Growing up in Baltimore, Gordon befriended a menagerie of parakeets, hamsters, mice and guinea pigs. Then his father brought home an irresistible mutt. By high school, Gordon was volunteering at a veterinary clinic. He went on to major in animal science at the University of Maryland in College Park.

But there was a second passion, music. As a kid he had traded his ukulele for a guitar, and played in a band in high school. In college, he pursued a minor in music and then studied jazz performance. But when he started working again at the veterinary clinic, he realized how central the well-being of animals was to his own. Tufts offered two compelling options, a master’s in animals and public policy and the D.V.M. program. He applied to both.

“I had an interest in animal welfare—specifically shelter, zoo animal and farm animal welfare—but was also interested in wildlife conservation,” he says. “The diversity of the master’s program seemed like a good opportunity to explore all of these topics.”

Wait-listed for the veterinary program, he earned the master’s in 2008 and then went to work for the Animal Rescue League of Boston. Within a year, though, he was back at Tufts, this time as a D.V.M. student.

“His case was an eye-opener,” Kaplan says. “I thought of the millions of other animals out there like him. I realized that I wanted the legacy of my career to be ending the biggest killer of dogs and cats in this country—overpopulation. For decades, we’ve been trying to solve shelter killing by adopting out as many dogs and cats as we can and killing the rest, and for decades we’ve been failing,” he says. “But we can put our foot down with an extremely simple solution: stop breeding dogs and cats now, shut down the puppy mills and adopt responsibly so we can get this problem under control.”

As he learns more about the Cummings School’s program in shelter medicine, established in 2006, he is encouraged that perhaps future Tufts veterinarians will help address the overpopulation issue. To these students, he offers this advice: “Stick tight to what you want your reality to be. One of the things you will hear is that a veterinary clinic is a business, and if your clients can’t pay you, you have to make some unfortunate decisions. I say you can challenge that. I do every day, and I love my career because of it.”

Matthew Gordon, V12, says veterinary medicine is his calling.

A DECISION MADE EASY

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“I discovered I am more of a hands-on person and that I definitely need to have something different to do every day,” he says. At Tufts, he helped organize free vaccine clinics in partnership with the Worcester Housing Authority and tracked a population of gopher tortoises in Georgia for a summer research project.

Now living in New York City with his girlfriend and two dogs and four cats—all but one from a shelter—he is glad he had the courage to follow his calling. And he is especially thankful that Andrew Kaplan helped ease the financial burden of that decision.

“It’s great to see that Dr. Kaplan and others who are so successful are helping students,” he says. “The value of a scholarship that you don’t have to repay, I can’t put it into words. It’s amazing! It’s absolutely necessary to have these scholarships in place, and to have them put in place by a vet is really cool. If ever I am in that position, I’d do it in a heartbeat.”

—LAURA FERGUSON
Community Resource

It seems everyone got behind this veterinary clinic

Samar Zayas brought her dog Puty to the Tufts at Tech Community Veterinary Clinic, desperate to find out why the 3-year-old Chihuahua was so sick. Tests revealed an overactive immune system was destroying the pup’s red blood cells. With treatment, Puty’s blood cell count bounced back. Such care typically costs several hundred dollars. Zayas’s total bill: about $150.

Puty is one of hundreds of pets treated at the primary-care clinic since it opened last spring in Worcester, Mass. A partnership between the Cummings School and Worcester Technical High School, the clinic offers subsidized care to pet owners who might otherwise be unable to afford it (see related story, page 6). The clinic also helps the high school students become certified veterinary assistants, and fourth-year Cummings School students gain hands-on experience.

“It’s a win-win-win,” says the clinic’s director, Gregory Wolfus, V98. “It’s not hard to convince people to get behind our mission.”

Indeed, the venture has garnered an outpouring of financial support. The clinic and the director’s salary are underwritten by foundations, alumni and friends, and cash donations to date exceed $315,000. Maine-based IDEXX Laboratories, which develops diagnostic and information-sharing technologies to keep animals healthy, contributed $100,000 in equipment, products and funds to name the IDEXX Diagnostic and Discovery Learning Center.

“It was a perfect match with our goals to support the education and development of students pursuing careers in science, technology, engineering and mathematics,” said Jim Polewaczyk, corporate vice president at IDEXX.

Support from the Skyline Technical Fund, a foundation that supports Worcester Technical High, covered the cost of construction and will defray operating costs. Iaccarino, a local millworks company, donated a reception desk and bench tops.

Leadership gifts included $100,000 each from the Aurelio M. Caccomo Family Foundation and the Manton Foundation. Tufts alumna Janice Calkin, J51, donated $250,000 to name the clinic waiting area.

Grant Funds
New Faculty Position

Cummings Foundation, through its grant-making affiliate, OneWorld Boston, has awarded $100,000 to the Cummings School to hire a new faculty member for the school’s International Veterinary Medicine program. The support of at-risk international communities where diseases spread from animals to humans is a longstanding tenet of the school’s mission and aligns with the philanthropic priorities of Bill Cummings, A58, H06, president of the foundation.

“The promotion of social equality and justice is among the priorities of OneWorld Boston,” said Joel Swets, executive director of Cummings Foundation. “We recognize that the Cummings School’s global health initiatives have the potential to affect food access and small-business development in a positive way, improving health and economic opportunities in unstable areas.”

At the time it was founded in 1982, Tufts’ International Veterinary Medicine program was unusual in that it anticipated the need for globally oriented veterinarians who understood that the health of humans, animals and the environments in which they coexist are inextricably linked. The program meshes classroom learning with experiences in the field. Students have worked on rabies control in Nepal, poultry health in southern Africa and avian influenza control in Indonesia.

The gift will help the school stabilize and expand one of its signature programs, said Dean Deborah T. Kochevar. “We are very grateful for this opportunity to enhance the International Veterinary Medicine program and Tufts’ entire global health network,” she said. “We look forward to bringing on board an exemplary leader who will not only build the program, but who also will collaborate with colleagues across Tufts University, focusing on solutions in medicine, nutrition, diplomacy and citizenship and public service.”
A Very Thirsty Guinea Pig

Jennifer Graham, head of the Cummings School’s zoological companion animal medicine department, responds to a reader’s question about her parched guinea pig.

Q: Could my guinea pig be diabetic? He drinks 32 ounces of water a day and soaks his cage within a few days. If he is, is there any way to treat it?

A: That certainly is an excessive amount of water consumption for a guinea pig and may be an indicator of underlying disease, including kidney problems, dental issues and metabolic disorders such as diabetes.

I urge you to visit a veterinarian familiar with this species to have your pet undergo a thorough physical examination. Your veterinarian will take a blood sample to check your guinea pig’s blood glucose levels and look for signs of infection or organ dysfunction. Further testing, including X-rays, may be needed to rule out urinary tract stones.

Diabetes mellitus is not particularly common in guinea pigs, but it has been reported. The good news is that the disease can be temporary, and insulin therapy is usually not necessary. A low-fat, high-fiber diet is most important in treating—and preventing—diabetes.

Until your guinea pig is seen by a veterinarian, pay close attention to what he is eating. Guinea pigs should always have access to high-quality grass hay, such as timothy, and water. Alfalfa hay and pellets shouldn’t be fed to adult guinea pigs, because they contain excessive amounts of calcium and can predispose these animals to obesity and bladder stones. Unfortunately, many diets commonly sold at pet stores contain alfalfa as well as seeds or dried fruit, which are also not appropriate foods for a guinea pig.

Please email your questions for “Ask the Vet” to Genevieve Rajewski, Editor, Tufts Veterinary Medicine, at genevieve.rajewski@tufts.edu.
OH, DEER!

When all of those other reindeer wouldn’t let poor Rudolph play in any reindeer games, maybe it was for the best. After all, that’s probably how Willow, a reindeer at the Stone Zoo in Stoneham, Mass., wound up needing knee surgery just 12 days before Christmas. Robert McCarthy, V83, a veterinary orthopedic surgeon at the Cummings School, operated on the 20-month-old deer, stabilizing her dislocated joint with a special plate and screws. Read more and see a video at go.tufts.edu/reindeer.