Seeing clearly
Tufts leads in diagnostic imaging
Defining the future of veterinary clinical care

Foaling season has begun. When I walk through the wards of Tufts' Hospital for Large Animals at this time of year, I am reminded of what makes veterinary medicine constantly intriguing and fulfilling. My own specialty is neonatal respiratory physiology and I have experience in the area of equine neonatal intensive care. So, when I see the treatments now available to foals brought to Tufts, I can best gauge how far veterinary medicine has come in a surprisingly brief time.

Twenty years ago, when I became actively involved in the new field of equine neonatal intensive care, we recognized that sick newborn foals brought to a teaching hospital faced a gloomy prognosis. Only about 25 percent of them would return to their farms with the prospect of a healthy life ahead of them. Today, Tufts' overall success rate with foals presenting with a variety of life-threatening diseases such as septicemia, birth asphyxia, and diarrhea is closer to 85 percent.

In every area of large and small animal practice, Tufts' faculty offers patients the best treatments available today. They also are working to develop new diagnostic protocols and therapies that will improve our success rates in the future. We are not content to stand still. Our faculty, aided by residents and veterinary students, are actively engaged in research studies in oncology, cardiovascular disease, orthopedics, tissue regeneration, and behavior.

We also recognize how we leverage change. With the exceptional students we graduate, we advance the health and welfare of animals. And, with each validated diagnostic or treatment procedure developed at Tufts, we strengthen the portfolio of options all veterinarians can offer their clients.

In some fields, such as diagnostic imaging, we assist veterinarians and animal owners in our region by making available equipment and expertise that can only be supported by a referral hospital such as ours. We also are mindful of the critical partnership we have with all practicing veterinarians in our region. We meet regularly with an active veterinary practitioner liaison group comprised of representatives from each of the New England states. Members of this group offer guidance about ways that Tufts can best serve the area's clinicians and animal owners, which helps us to anticipate emerging trends in veterinary medicine.

In summary, we advance the clinical practice of veterinary medicine by pioneering novel diagnostic and therapeutic approaches to our hospital patients and by educating the next generation of veterinary clinicians. The research discoveries we make have the potential to improve veterinary healthcare for generations to come.

Philip C. Kosch, D.V.M., Ph.D.
Dean
Tufts veterinary student sings her way to conference

**Who knew I would have to go to vet school to get more publicity as a singer!** That was the reaction of Ginger A. Browne-Johnson, V04, after winning first prize in a talent competition during the North American Veterinary Conference in Orlando in January.

Browne-Johnson sang Quando men vo or Musetta's Waltz from Puccini's opera, La Boheme. She competed against 20 others, including comedy acts, a classical guitarist, bagpiper, jazz singers and an Irish step dancer.

The talent competition, open to all attendees, was sponsored by Merial, which awarded Browne-Johnson free registration and six nights' accommodations at next year's North American Veterinary Conference.

Browne-Johnson has been studying voice since she was 15. After graduating from Brown University with a double major in music and biology, she earned a master of music degree in vocal performance and a teacher's certificate in music from the New England Conservatory of Music.

After graduation, the singer-veterinarian plans to work in a small animal practice and eventually start her own practice with husband, Greg Johnson, as manager.

"Of course, I'll always be singing and looking for opportunities to perform," she said.

Tufts remembers Dr. Betty Lawrence, pioneer in human-animal interactions

World-renowned veterinarian Elizabeth Atwood Lawrence, professor emerita at Tufts Veterinary School's Department of Environmental and Population Health and a leading authority on human-animal interactions, died last fall, after devoting more than 50 years to the field of veterinary medicine.

Lawrence was one of the original faculty members of Tufts Veterinary School. She developed a course in human-animal interactions and taught it for 20 years. The course was required for all first-year veterinary students and served as a model for similar courses offered at veterinary schools throughout the U.S.

Lawrence was the former chairwoman of the veterinary school's admissions committee as well as a member of the animal welfare committee and the dean's advisory group on women in veterinary medicine. She was a senior fellow of the Tufts Center for Animals and Public Policy and continued to advise master's degree students until her death.

Combining her training in veterinary medicine with her expertise as a social scientist, Lawrence wrote four books and many journal articles and reviews exploring the ways in which various human societies use animals in sports, religion, folklore and other expressions of culture. She won numerous local and national honors throughout her career, including the AVMA's "Outstanding Woman Veterinarian of the Year" award in 1988.

"Tufts' Signature Program in Veterinary Ethics and Values owes its reputation in large measure to Betty's pioneering contributions to our profession and to our understanding of the importance of animals in our society," said Dean Philip Kosch. "As a veterinarian, academician and gentle person, Betty made her mark on all of us and on the entire veterinary profession. We shall miss her."

Northeast Veterinary Conference plans advance

Plans are developing for the Northeast Veterinary Conference (NEVC), to be held August 8-10 at the Rhode Island Convention Center in Providence. The first of its kind in the Northeast, the event is expected to attract over 1,000 veterinarians, veterinary technicians and hospital staff from the region and the nation.

The event is hosted by Tufts Veterinary School and The Rhode Island Veterinary Medical Association in association with the Angell Memorial Animal Hospitals, Becker College, The Animal Medical Center of New York City and the veterinary medical associations of Connecticut, Maine, Massachusetts, New Hampshire, and Vermont and the New England Veterinary Medical Association.

The theme of this year's conference is making better use of technicians to enhance patient care as well as economic aspects of private practice. Keynote speaker Dr. Alan Rebar, dean of Purdue University School of Veterinary Medicine, will expand on this theme as will individuals presenting at the conference's seminars and hands-on workshops.

"The conference will emphasize our mission of promoting top quality continuing veterinary medical education," said Dr. Anthony Schwartz, executive director, Northeast Veterinary Conference and associate dean for Continuing Education and Outreach Programs at Tufts Veterinary School.

"We are especially pleased to be working with members of the Rhode Island Veterinary Medical Association to present this first annual conference."

All net income realized from the NEVC will be used for student scholarships at Tufts Veterinary School. "In addition to bringing a robust educational conference with a major trade exhibit to the Northeast, we are hoping to find ways to help our students manage the high cost of a veterinary medical education," Schwartz said.
You want to see how far Tufts University School of Veterinary Medicine has come in its 25-year history, visit the Henry and Lois Foster Hospital for Small Animals. Since opening its doors in 1985, the hospital has become one of the busiest animal hospitals in the U.S. with a patient load of more than 25,000 annually.

Even more impressive than the numbers of patients, however, are developments and application of technology that revolutionized the way veterinary medicine is practiced at the Foster Hospital. For example, Tufts' clinical staff commonly use ultrasound, magnetic resonance imaging (MRI), and Computed Tomography Imaging (CT scans) to diagnose seriously ill or injured animals and to enhance treatment.

"The advances have been phenomenal," said Dr. Steven L. Rowell, V'83, hospital director. "Twenty years ago, x-rays were the only diagnostic tool we had available."

Advances in diagnoses have led to improvements in other areas of patient care, Rowell added. "Today, Tufts is at the leading edge of emergency and critical care. The developments in oncology have been dramatic and pain management is light years ahead of where it was 20 years ago."

Consider Stitch, a 14-month-old tabby cat referred to Tufts by veterinarians at Community Animal Hospital in Shrewsbury, Mass., after a sudden bout of vomiting accompanied by a high fever. Stitch's owner, Nancy Pellegrino, was worried the curious cat that loves to chew might have gotten into a bottle of vitamins. Initial tests showed an elevated level of liver enzymes.

Years ago, clinicians would have been able to do little more than prescribe medication and hope for the best. Now, with advances in ultrasound technology, clinicians literally can see what's going on inside—evaluating the internal organs and structures—without having to do surgery.

It was an ultrasound that helped Tufts clinical staff diagnose and treat Stitch's illness. During the procedure, a radiologist moved the hand-held probe transmitting sound waves over the cat's shaved belly. The returning echoes were converted into pictures of Stitch's gall bladder and liver on the ultrasound screen.

Ultrasound technology also is used to guide techniques such as fine needle aspirations and biopsies which involve taking fluid or tissue samples for analysis. Because ultrasound allows the needle to be moved into a precise target, it's a much safer procedure for animal patients and results in more accurate diagnoses of their illnesses or injuries.

In Stitch's case, the gall bladder contained debris and its wall appeared thickened. The liver was enlarged. Together, these
findings “led us to suspect an infection of both gall bladder and liver,” said Dr. Kelli Weaver, radiology resident. To confirm the suspicion, she ordered an ultrasound-guided fine-needle aspiration of the gall bladder contents. The analysis confirmed the diagnosis. Weaver prescribed a course of antibiotics and started the cat on fluids. Within two days he was active and ready to go home.

“Tufts is a leader in using diagnostic imaging methods to advance veterinary medicine,” said Dr. Dominique Penninck, head of Tufts’ Radiology Department, who cited the development of clinical applications for ultrasound, CT scans and MRI.

“Ultrasonography plays an important role in better defining changes affecting one or more organs,” Penninck explained. “It’s one of the leading non-invasive, cross-sectional imaging modalities and can assist the clinician in choosing the best and most cost-effective method for managing a particular clinical situation. It often allows us to direct a patient to surgery or endoscopy, depending on its condition.”

Penninck, who is recognized as a pioneer in the field of gastro-intestinal ultrasonography, joined the Radiology Department in 1989 and has since strengthened Tufts’ leadership in the field of veterinary diagnostic imaging. Her ultrasonography elective course has become very popular, as this diagnostic procedure is now an integral part of the diagnostic approach in most veterinary clinics.

The Foster Hospital recently expanded its ultrasound capabilities with the addition of upgraded equipment (an HDI 5000 unit) offering panoramic views of any organ or structure. The new unit also provides increased resolution to better outline and characterize lesions.

“Tufts is a leader in using diagnostic imaging methods to advance veterinary medicine.”

Another diagnostic imaging modality, MRI, was used recently to diagnose a brain tumor in Mandy, an American Kennel Club champion.

When a sudden onset of seizures threatened to sideline the border terrier, her veterinarian referred the nine-year-old dog to Tufts for treatment. Initial x-rays and tests failed to determine a cause of the seizures, so Tufts neurologist Dr. Jay McDonnell recommended MRI.

“I was prepared for the test to show epilepsy,” said Michele Emond, the dog’s owner. “But I was shocked when Dr. McDonnell told me Mandy had a brain tumor.”

Indeed, the malignant tumor was so large and aggressive it required removing the part of Mandy’s brain cortex affecting her motor skills and coordination.

Besides surgery, Mandy was given a CT scan “to confirm we were getting all of the tumor,” Dr. McDonnell said. He explained that the unusual step of interrupting surgery to perform a CT scan advances our understanding of tumors to provide a better therapeutic plan.

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Emond spent a week helping Mandy with exercises designed to strengthen her muscles and coordination. A month later, the active little dog showed few outward signs of her ordeal. She was on a schedule of chemotherapy, "but seems like her old self," Emond said.

Tufts radiologist Dr. Amy Tidwell explained that MRI helps diagnose brain and spinal cord tumors by depicting them so clearly on the image. "MRI can differentiate normal from abnormal tissue (such as brain and spine tumors) by assigning different grey shades in the image to these different responses," she said. "Although the final image appears as a composite of grey shades, as in a radiograph or CT image, they represent information unique to MRI."

When an animal suffers from a seizure, "MRI allows us to find the cause, to localize the lesion well enough to permit a biopsy, and shows the tumors extent well enough to permit precise surgical resection or treatment with radiation," Tidwell said.

Tumors like Mandy's are rare. Specialists report that brain tumors occur at a rate of 14.5 per 100,000 dogs and 3.5 per 100,000 cats. Determining the true incidence of brain tumors in small animals is difficult, according to Tidwell, "because many animals with neurologic signs pointing to a brain/spine tumor never have their diagnoses confirmed with imaging."

Technology has changed dramatically since Tidwell joined the Tufts staff as a resident in radiology in 1987. Four years ago, the hospital contracted with a mobile MRI service. Clinicians can now diagnose and treat patients that arrive as emergencies and can better follow up the progress of their patients.

Looking into their hearts

When ultrasound is done on the heart, revealing compelling views of the powerful organ's chambers and valves, it is called echocardiography. For Tufts' clinicians, echocardiograms have become increasingly important in diagnosing and screening for heart diseases.

"It's a powerful tool," said cardiologist Dr. John Rush, associate chair of the Department of Clinical Science. It's also a tool that's become increasingly common. At the Foster Hospital there are from five to eight echocardiograms performed every day.

A good example of how imaging is used for cardiac patients is the case of the sheltie with patent ductus arteriosus (PDA), a congenital heart defect. The 12-week-old dog was referred to Tufts after a routine exam revealed a loud heart murmur. Dogs with PDA have an opening in a small blood vessel that connects the pulmonary artery to the aorta. Normally, the opening closes up shortly after birth, but when it doesn't, extra blood circulates to the lungs and can eventually cause congestive heart failure.

After an echocardiogram confirmed the diagnosis, Rush corrected the condition with a cardiac catheter, a procedure far less invasive than major surgery. Instead of a large chest incision, Rush made a small, pinhole incision in the puppy's leg and passed a thin catheter through the artery to the aorta.

"We did a contrast injection under fluoroscopy to identify the aorta, PDA and pulmonary artery," he explained. "This allowed us to measure the size of the PDA and choose the appropriately sized coil."

The coil is tiny and fiber coated. Inserted through the catheter to the site of the PDA, it is released and the fibers cause a clot (thrombus) to form, sealing off the blood vessel and fixing the defect.

In the sheltie's case, the first coil partially sealed off the blood flow, so a second, smaller coil was added. When the second contrast injection showed the blood flow through the PDA had been sealed off, the catheter was removed from the puppy and the incision closed. After an overnight stay in the intensive care unit, the puppy was able to go home in good health.
recognizing a growing need for veterinarians in biomedical research, Tufts Veterinary School is offering new degree opportunities. These include programs leading to master of science and doctor of philosophy degrees in comparative biomedical science, as well as mentoring programs in scientific research for veterinary residents.

Dr. Robert Bridges, professor of Biomedical Sciences and director of a new, dual degree program for veterinary students, said: “The goal is to expose veterinary students to hypothesis-driven research because the future of animal and human health depends on it. It’s crucial for individuals to acquire scientific skills and technical training so they can participate as independent researchers and collaborators in academic and corporate based research.”

The dual degree program enables students to obtain a master of science degree in comparative biomedical sciences while pursuing a doctor of veterinary medicine degree. Students who participate will take a year off during their veterinary school training to work under the direction of faculty conducting research. Twenty faculty members from the departments of Biomedical Sciences, Clinical Sciences and Environmental and Population Health will act as mentors for students in the program.

The program directed by Bridges is funded by the National Center for Research Resources, part of the National Institutes of Health (NIH). Tufts is one of only seven veterinary schools in the U.S. to receive one of these new research training grants.

The program will dovetail with Tufts’ successful NIH Summer Research Program for veterinary students directed by Dr. M. Sawkat Anwer, chair of the Biomedical Sciences Department. The summer research program has been in existence since 1990 and a total of 192 students have participated, working on such important public health projects as infectious diseases, food and waterborne diseases, and reproductive biology, to name a few. This summer, 15 veterinary students will undertake research projects.

“There is a special need to train veterinarians for a research career,” Anwer said, “because of the growing recognition of the complex interdependence of animal and human health.”

The doctor of philosophy in comparative biomedical sciences program provides advanced research opportunities. Directed by Dr. Arthur Donohue-Rolfe, associate professor in the Department of Biomedical Sciences, the program is open to both veterinary and non-veterinary students, and provides training in infectious diseases and reproductive biology research projects.

Heading an effort aimed at mentoring veterinary residents is Dr. Lisa Freeman, V91, J86, NR96. Her newly funded NIH education grant involves faculty from Tufts Veterinary School, Tufts Medical School and Tufts Friedman School of Nutrition Science and Policy who will collaborate to introduce veterinary residents to research careers. Faculty will encourage them to consider advancing animal and human health by making their own research-based contributions. An important feature of this program will be symposia on animal models of human disease.

“The long-term objective of these programs is to make student research experiences a foundation for careers in research,” Bridges explained, “and to stimulate intellectual growth and productivity within our own academic environment at Tufts Veterinary School.”
Twenty-five years ago, "it was a giant leap of faith when Tufts' board of trustees voted to establish a School of Veterinary Medicine, the only one in New England," said Lawrence S. Bacow, president of Tufts University, at ceremonies rededicating the Henry and Lois Foster Hospital for Small Animals on November 1, 2003.

The hospital completed $3.25 million in renovations. There is a new emergency room and trauma center, an expanded intensive care unit for critically ill pets, and new hospital wards and treatment areas, including a separate ward for cats. The rededication celebration also honored Dr. Henry L. Foster, V83, H92.

Dean Philip C. Kosch presented him with the Dean's Medal, the highest honor a dean of Tufts University can bestow, "in gratitude, admiration and respect for Dr. Foster's steadfast support of Tufts Veterinary School," he added.

Foster has strengthened every aspect of life at Tufts Veterinary School," he added.

Fully funded by charitable gifts including a lead gift from Dr. and Mrs. Foster and gifts from other individuals and foundations, the Foster Hospital construction project created a 5,100-square-foot addition and renovated 6,500 square feet of existing space.

Since opening in 1985, the Foster Hospital has garnered international attention for its leadership in veterinary specialties such as emergency and critical care, oncology, diagnostic imaging, surgery, nutrition and behavior.

"With this rededication we renew our commitment to the excellent academic training and quality veterinary care provided within these walls," Bacow said.

The quality of Tufts' care and treatment of their terminally ill dog inspired a grateful family to help fund the expansion and renovation of the intensive care unit. A plaque commemorating their generous and anonymous donation reads:

We hope this facility will benefit all those who enter here;
The animals who come for care and healing, the people who love them, the doctors and staff who treat them with compassion, the students who come to learn from them, and all others who assist in their care.

Working in the expanded emergency room, funded by the Shirley Shattuck Windsor Charitable Trust, are, from left to right: Dr. Kim Barcus-Winters, J97, V02, Kaitlin Fitch, V04, Dr. Shawna Li, V03 and Dr. Alicia Henderson, V02.
Cristen Kilpatrick, intensive care unit technician works in the new "stat" laboratory, a gift of Elisabeth and Richard Sperry, that enables staff to do vital testing on the spot.

Cheryl Wagner, inventory clerk, checks supplies in the new food room designed and equipped by Nestlé Purina.

Tracey Elmes, senior veterinary technician, examines a patient in the new Agnes Varis Cat Ward.

At the ribbon cutting, from left to right: Lawrence S. Bacow, Tufts president, Jim Stern, E72, president of the board of trustees, Dr. Philip C. Kosch, dean of the School of Veterinary Medicine, Lois Foster, Dr. Henry L. Foster, Nathan Gantcher, A62, Tufts Veterinary School trustee.

Answering calls at the newly expanded phone bank are Dr. Christopher Ober and Jennifer O'Sullivan, V04.

Discussing a case in the newly enlarged intensive care unit are, from left to right: Dr. Armelle M. DeLaforcade, V97, Dr. Scott Shaw, V98, Dr. Terry O'Toole, V95 and Dr. Elizabeth Rozanski.

Michael Goodrow, veterinary technician, works in one of the new inpatient wards.
During rounds at Tufts' Hospital for Large Animals one afternoon a few years ago, Dr. Mary Rose Paradis noticed that all the horses she was examining had something in common: they were all more than 20 years old.

"I knew we'd been seeing an increase in older horses among our patients," Paradis said, "but here I was with an entire ward of old horses. I decided to look at the census data to see how it compared to our regular caseload."

Paradis' investigation led to a multi-year research project resulting in the first-ever published demographic data on geriatric horses. Two articles on the study, co-authored by Dr. Margaret Brosnahan, V02, were published last summer by the Journal of the American Veterinary Medical Association.

Paradis and Brosnahan performed a retrospective study of horses over the age of 20 years that Tufts veterinarians treated over a 10-year period from 1989 to 1999. Their statistics showed a six-fold increase in the number of geriatric horses treated at the hospital. In 1989, the number of horses over the age of 20 represented only 2 percent of the patients treated at the Hospital for
Large Animals; 10 years later the percentage had increased to 12.5 percent.

Of that percentage, many were very old horses. "We treated horses from 20 to 45 years old; several were older than 30," Paradis said.

In a second study, the two veterinarians also surveyed Tufts' clients and those of Drs. Bruce Chase and Ernie Finnochio, large animal veterinarians with separate practices in Massachusetts and Rhode Island.

"We wanted to find out how owners defined 'old,' as well as what the maintenance issues were in keeping an older horse healthy," Paradis said.

"Just as care for newborn foals has evolved over the years, so, too, has geriatric care."

Survey respondents considered a horse to be old at a mean age of 22 years and noted changes and signs of aging at a mean age of 23.

Data collected on older horses compared with a group of younger horses showed that the older animals were more likely to have problems with their digestion and dental health, and were more susceptible to contracting Cushing’s disease, an endocrine disorder. Afflicted horses have long, shaggy coats, a symptom caused by an over-active pituitary gland. Horses with Cushing’s disease also are more likely to suffer from laminitis, a painful disorder that causes inflammation of connective tissues in their hooves.

Surprisingly, a substantial number of horses in the study were still engaged in regular activity in their old age, with some even performing in competitions.

"The quality of care, both veterinary and nutritional, has improved over the last 20 years," she said. "Just as care for newborn foals has evolved over the years, so, too, has geriatric care."

Veterinarians are responding to concerns of the geriatric horse owners about how to comfort and care for their aging companions.

"There’s a tremendous bonding that occurs when an owner has a horse for many years," Paradis said. "Some of our clients have had their horses since they were children. It is not uncommon when talking to an owner of a 35-year-old horse to find out that this was the first horse she had as a child."

"Shetland pony from Spencer, Mass., is remarkable. Glory is 43 years old. That’s comparable to more than 100 in human aging and certainly qualifies as elderly. But the pony, ranked at the international level in competitive driving during her youth, still works up enthusiasm for her daily treat: an ear of corn that she gobbles down to the husk."

"She still has spirit," said owner Stephanie Underwood, admissions/discharge secretary at Tufts’ Hospital for Large Animals.

Underwood has become something of an expert in the care of geriatric horses; two others she owns are older than 25. Glory’s companion, Baboo is a Hackney pony, who watches out for his old friend when the two are turned out together. "Glory is only ten hands (40 inches) tall," Underwood explained. "She likes to tuck her head under Baboo’s belly for shade."

Older horses need a lot of attention and some need specialized care. Glory and Baboo, for example, have Cushing’s disease. Baboo needs corrective shoeing for laminitis and Glory’s teeth give her trouble.

"They require time and sacrifice," Underwood said, "but they’re good, honest, sweet horses—why wouldn’t you do all you can for them?"

Underwood is one of a growing number of horse owners willing to take on the additional responsibilities of geriatric equine care.

"I encourage Tufts clients who have older horses; we all share information," she said. "Just because a horse is old, doesn’t mean there is no hope."
Tufts Veterinary School is helping to discover how a disease—so virulent it is classified by the Centers for Disease Control as a potential bioterrorism agent—found its way from endangered, fruit-eating bats in the rain forests of Southeast Asia to pig farmers in Malaysia.

The bats carried a new viral disease, Nipah, named for the Malaysian village where it broke out five years ago. Nipah virus killed more than 100 people and wiped out the country’s pork industry after almost a million pigs were destroyed in a successful effort to curb its spread.

Now, an international team including Tufts Veterinary School alumnus Jon Epstein, VM PhD 02, is investigating how Nipah jumped species from bat to pig and then to humans. The ultimate goal of the project, funded by a $1.4 million grant from the National Institutes of Health, is to prevent future outbreaks of the deadly virus. Epstein, a senior program officer with the Consortium for Conservation Medicine and a clinical assistant professor in Tufts Veterinary School’s Environmental and Population Health Department, is managing the grant.

Epstein and a multidisciplinary team of scientists are catching bats and analyzing blood and tissue samples from them. A few months ago, they successfully outfitted a young, healthy, male fruit bat with a satellite collar to track its flight and roosting range. Quite a feat, given that the bat, the largest member of the group described commonly as flying foxes, weighs two and a half pounds and has a wing span of four feet.
"They're beautiful and impressive animals," said Epstein, who first worked with giant fruit bats in Australia while a student at Tufts. As a veterinarian, he brings a unique perspective to the Nipah virus project.

"Veterinarians bridge the gap between animal and human health," he said. "In researching how disease spreads, it's our responsibility to advocate for wildlife, not vilify them as disease carriers."

Epstein's additional qualifications in public health are vitally important as he investigates the ecology of emerging infectious diseases. Nipah, like SARS and last winter's outbreak of avian flu, is a public health concern because it's a zoonotic disease potentially fatal to millions of people if an epidemic occurs. Unlike avian flu that kills birds, the Nipah virus does not appear to make the bats carrying it sick. In 1999, when Nipah infected pigs and then humans, however, the results often were fatal.

Scientists theorize that Nipah spread to pigs that ate remains of fruit spit out by bats roosting in mango and papaya trees. The trees and the pigs were on farms that encroached on the Malaysian rain forest, the bats' normal habitat. The pigs as well as humans tending them got sick and more than 40 percent of the humans who got Nipah virus died from it.

The avian flu is more direct. People who came in contact with infected birds got sick and a few of them died, though the fatality rate has not yet been as high as Nipah's.

"The real fear is that someone who already has the flu will get avian flu and the two viruses will combine to form a strain that humans can pass to each other," Epstein said. "This could potentially lead to a global pandemic."

This past summer, two Tufts veterinary students joined the Nipah virus research effort. Sapna Malwal, V05, studied blood and tissue samples from two species of bats in Malaysia and Amanda McLaughlin, V06, investigated fruit bats carrying a Nipah-like virus in India. Epstein noted that solving the puzzle will involve diplomacy and communication as well as scientific skills.

"We have to be skillful in communicating with a wide range of people, from government officials to local farmers," he said. "We can point out that it's not a good idea from a public health standpoint to build a pig farm at the edge of a rain forest," he added, "and it's certainly not a good idea to plant fruit trees there."

Epstein, who was the first recipient of Tufts' certificate in international veterinary medicine, credits the development of his career to the multi-disciplinary training he received as a veterinary and public health student.

"Tufts is unique in supporting alternative career paths for veterinarians."
Varis gift is largest in the history of Tufts Veterinary School

A gnes Varis, veterinary overseer and pharmaceutical entrepreneur, has committed $5 million to Tufts University School of Veterinary Medicine, the largest gift in the school's history. The gift was announced during a joint meeting of the trustees of Tufts University and the board of overseers of the School of Veterinary Medicine last November to mark the 25th anniversary of Tufts Veterinary School and to celebrate the rededication of the Henry and Lois Foster Hospital for Small Animals.

Varis' unparalleled gift will support new master's and doctorate programs in public health, comparative biomedical science at the School of Veterinary Medicine and will stimulate research collaborations between Tufts' unique constellation of health sciences schools. The gift furthers the university's vision of fostering world-class interdisciplinary research and developing a cadre of graduates prepared to meet current and future needs in comparative biomedical science and public health.

"Agnes learned about the desperate need for veterinarians to solve health problems of world significance and she responded."

From left, Lawrence S. Bacow, Tufts president, Agnes Varis, Dr. Philip C. Kosch, dean of the School of Veterinary Medicine, in front of the Agnes Varis Cat Ward at the Henry and Lois Foster Hospital for Small Animals. The ward honors Varis' cats, Kallee, Kiki, Mishi and Zeus.

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"Agnes Varis has once again stepped forward to help the university and the veterinary school," said Lawrence S. Bacow, president of Tufts University.

Varis, who is president and founder of Agvar Chemicals Inc. and Aegis Pharmaceuticals, has worked tirelessly professionally and personally to raise awareness of science's responsibility to solve society's problems. In 2000, she established the Agnes Varis University Chair in Science and Society to encourage consideration of this responsibility throughout Tufts' academic departments.

Her generosity to Tufts University has also included support for spay/neuter rotations for Tufts veterinary students at Bide-A-Wee, a New York-based animal shelter and adoption organization; the funding of the Agnes Varis Lecture Hall on the Grafton campus; and a gift to create the Agnes Varis Cat Ward in the expanded in-patient wards in the Henry and Lois Foster Hospital for Small Animals.

With Varis' latest extraordinary investment, Tufts School of Veterinary Medicine will be able to launch many initiatives, including:

- The Agnes Varis Public Health Fellows—veterinary students who work toward their D.V.M./M.P.H. combined degree in collaboration with Tufts Medical School's Graduate Programs in Public Health.
- The Agnes Varis Summer Scholars—veterinary students who will conduct research with faculty from other Tufts schools and affiliated hospitals.
- The Agnes Varis Ph.D. Fellows—a new program supporting doctoral research training in comparative biomedical sciences.

"I am overwhelmed by Agnes' generosity and enthusiasm for our work," said Dean Philip C. Kosch. "Agnes learned about the desperate need for veterinarians to solve health problems of world significance and she responded."

Her hope is our hope: that Tufts graduates will be in the forefront of helping animals and people by addressing deadly infectious diseases and other major existing and emerging health challenges."
Dr. Lindenmayer named overseer

Dr. Joann Lindenmayer, V85, veterinarian and public health practitioner, recently was named to Tufts Veterinary School's board of overseers.

Lindenmayer is assistant professor of research at Brown Medical School and epidemiologist, Division of Disease Prevention and Control, at the Rhode Island Department of Health. Her career encompasses academic, research and field experience.

"Dr. Lindenmayer's distinguished experience in public health will be of great value to our school," said Dean Philip C. Kosch. "Whether they work in traditional, private practice or in government agencies, veterinarians are important protectors of public health."

Lindenmayer received a master's of public health degree from the Harvard School of Public Health in 1988. She was founding director of the Master's of Public Health Program at Brown University, where she now teaches applied public health. She also holds an appointment at Tufts Veterinary School as clinical assistant professor in the Environmental and Population Health Department.

At the Rhode Island Health Department, Lindenmayer conducts surveillance and evaluation of the Diabetes Prevention and Control Program and is chair of the Institutional Review Board.

As a Peace Corps volunteer in north Borneo in the mid-1970s, Lindenmayer developed an interest in zoonotic diseases and animal production in developing countries. She was one of the first Tufts veterinary students to work on the Niger Integrated Livestock Project, a joint project of Tufts Veterinary School and the Fletcher School of Law and Diplomacy.

In 1988, Lindenmayer was awarded a postdoctoral fellowship from the Medical Foundation in Boston to study animals as sentinels for Lyme disease. In 1992, she joined the Epidemic Intelligence Service of the federal Centers for Disease Control and Prevention (CDC), followed in 1994 by assignment to Rhode Island as a chronic disease epidemiologist with the CDC's National Center for Chronic Disease Prevention and Health Promotion.

Her professional interests include fostering collaboration between human and veterinary medicine and public health. She collaborates with state and national organizations to incorporate advances in genomics into public health practice. Lindenmayer currently serves as lead genomics consultant for the Council of State and Territorial Epidemiologists.

Professional Continuing Education

May 16  
Small Animal Bioterror Preparedness Seminar

June 26  
Pain Management for the Dog and Cat—Perception, Diagnosis and Treatment

June 5-6  
Canine Behavior Conference

June 5-10, July 10-15  
Integrative Veterinary Herbal Medicine, an intensive investigation of herbs and formulas taught by Dr. Susan G. Wynn, Dr. Steve Marsden and Dr. Allen Schoen

July 18  
19th Annual Feline Symposium

August 8-10  
Northeast Veterinary Conference

December 5  
6th Annual Timely Topics in Internal Medicine

For more information about any of the programs or events, please visit our website: www.tufts.edu/vet/continedu or contact Susan Brogan in the Continuing Education Department (508) 887-4723; susan.brogan@tufts.edu

How to reach us

Main hospital switchboard and after-hours emergencies  
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Henry and Lois Foster Hospital for Small Animals  
appointment desk  
(508) 839-5395

Hospital for Large Animals  
appointment desk  
(508) 839-5395

Wildlife Clinic  
(508) 839-7918

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Shelley Rodman,  
director of veterinary development and alumni relations  
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spring 2004 TUFTS VETERINARY MEDICINE 15
With solemn recognition and joyous celebration, 78 students from Tufts Veterinary School's class of 2005 made the transition from classroom learning to clinical training in the school's first "White Coat Ceremony" on February 27.

"As you enter the clinical phase of your training, we are presenting you with your own white coats to acknowledge this milestone and affirm the importance of your professionalism," said Dr. Angie E. Warner, associate dean for academic affairs. "It is with great pride that we now entrust you to the clinical faculty for the next phase of your training."

During clinical instruction - which typically lasts for 15 months - students train at Tufts' Henry and Lois Foster Hospital for Small Animals, Hospital for Large Animals, and Wildlife Clinic in Grafton, Mass., as well as at the school's Ambulatory Clinic in Woodstock, Conn.

After donning their white coats, students socialized with members of Tufts' clinical faculty at a reception funded by the Massachusetts Veterinary Medical Association (MVMA).

"We want all of these young students to realize that they are actually more capable of working in the clinics than they believe they are at this point," said Dr. John DeJong, V85, and president of the state organization.