

Fall/Winter 2015

TRACKS

Magazine of the Virginia-Maryland College of Veterinary Medicine



Two colleges with
a common vision

Swine research

On the farm
On the road



Virginia-Maryland
College of Veterinary Medicine

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Jared Risser of Bainbridge, Pennsylvania, a third-year veterinary student in the college's food animal track, places an IV ear catheter in a cow at the new Dairy Science Complex at Kentland Farm. **Photo by:** Logan Wallace

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Dean Clarke and his golden retriever, Dudley

Message from the Dean

Our college offers comprehensive programs to advance the One Health goal of working across disciplines to attain optimal health for people, animals, and the environment. Livestock play such an important role globally in human nutrition, economic development, and zoonotic disease prevention that our educational, research, and service efforts must be attentive to food animals to further this cause.

In this third edition of *TRACKS* magazine, we highlight the important ways that we offer our students experiential training opportunities involving food animals. These include our partnership with the Virginia Tech College of Agriculture and Life Sciences and its dairy science program, anchored by the recent construction of a new dairy. Our students benefit from hands-on experiences with more than 50,000 food animals every year, thanks in part to our agreement to provide clinical service to food supply animals on Virginia Department of Corrections farms.

We also have strong research programs that contribute to the understanding and control of viral diseases affecting food animals, such as recent projects funded by Smithfield that aim to decrease antimicrobial drug use in swine. These successes would not be possible without our distinguished faculty and the college's significant investments in food supply animals.

Cyril Clarke

InclusiveVT camp gives up-close view into veterinary medicine

When campers rave about a new summer camp with phrases like “one of the best experiences in my life,” “loved the hands-on experiences,” and “a once-in-a-lifetime opportunity,” it’s obvious that things went well.

Held in the last week of July, the college’s inaugural Veterinary Medicine Science Camp offered students from underrepresented populations a week of tours, lectures, and hands-on experiences about veterinary medicine.

Eight undergraduate students from Richmond’s Virginia Union University and Norfolk’s Old Dominion University were chosen for the pilot program based on socioeconomic status, race and ethnicity, and life experiences. The camp is one of three initiatives the veterinary college developed this year as part of InclusiveVT, Virginia Tech’s new approach to inclusion and diversity.

Kayvon Hill of Chester, Virginia, a sophomore majoring in biology at Virginia Union University, found out about the camp from his biology professor.

“I am thinking about going to vet school



Top: Shireen Hafez demonstrates the anatomy of the heart in different species to the eight camp participants using plastinated specimens.

Bottom left: Jamila Braxton (ODU) draws up sterile saline in preparation for placing an intravenous catheter in one of our models.

after I graduate, but I am not sure about the best path for me because I also want to be a wildlife biologist,” Hill said.

Hill explained that the camp gave him a glimpse into what it would be like to be a veterinary student. He and the other campers spent a morning in the Veterinary Teaching Hospital shadowing faculty members and fourth-year veterinary students on clinical rotations. “We had hands-on experiences, not just textbook learning,” he added.

In 2016, the camp will expand to give more pre-veterinary students a chance to learn about the college and profession.



TWO COLLEGES with a COMMON VISION

The Virginia-Maryland College of Veterinary Medicine and the College of Agriculture and Life Sciences at Virginia Tech team up for education, research, and service

Even before the establishment of the Virginia-Maryland College of Veterinary Medicine in 1979, the veterinary sciences had a long tradition at Virginia Tech.

In 1891, the Virginia Agricultural and Mechanical College (now known as Virginia Tech) established a Department of Biology, which included the veterinary sciences, and then in 1959, it formed a separate Department of Veterinary Sciences. Students who wanted a veterinary degree, however, had to turn elsewhere until the creation of the regional veterinary college — a partnership between Virginia Tech and the University of Maryland.

Today, the veterinary college and the College of Agriculture and Life Sciences at Virginia Tech continue their strong relationship and are working together on education, research, and service related to food supply animals.

“We benefit from our partnership with the College of Agriculture and Life Sciences not only in the food animal caseload at the Veterinary Teaching Hospital, but also in the clinical teaching experiences that we offer our students who are working with Virginia Tech’s food animals, whether on campus or at the new dairy facility on Kentland Farm,” said William S. “Terry” Swecker, professor of production management medicine in the Department of Large Animal Clinical Sciences and director of the Veterinary Teaching Hospital.

The veterinary college’s busy ambulatory Food Animal Field Services unit provides on-the-farm primary and emergency patient care and preventive health care programs to large herds of beef and dairy cows, swine, and sheep owned by the College of Agriculture and Life Sciences. These also include animals at the 11 agricultural research and Extension centers around the commonwealth.

“We work with all agricultural animals, but the dairy facility is our primary client because they have a large number of animals and we are out there every day,” said Sherrie Clark, associate professor of theriogenology and production management medicine section chief. “We have a primary faculty member who works with each unit, and we work with our counterparts in the College of Agriculture and Life Sciences to develop health plans for each farm and determine what teaching opportunities are available.”

Food animal education

Although faculty members often incorporate these teaching opportunities into their courses, sometimes they include them in wet labs or other extracurricular activities. For example, Clark works with the Department of Animal and Poultry Sciences to organize combined wet labs for veterinary and animal sciences students.

The production management medicine team also provides instructional support and demonstrations for animal sciences, dairy science, and agricultural technology courses — not to mention the workshops, conferences, and lectures that the college’s three Virginia Cooperative Extension veterinarians offer the state’s livestock producers.

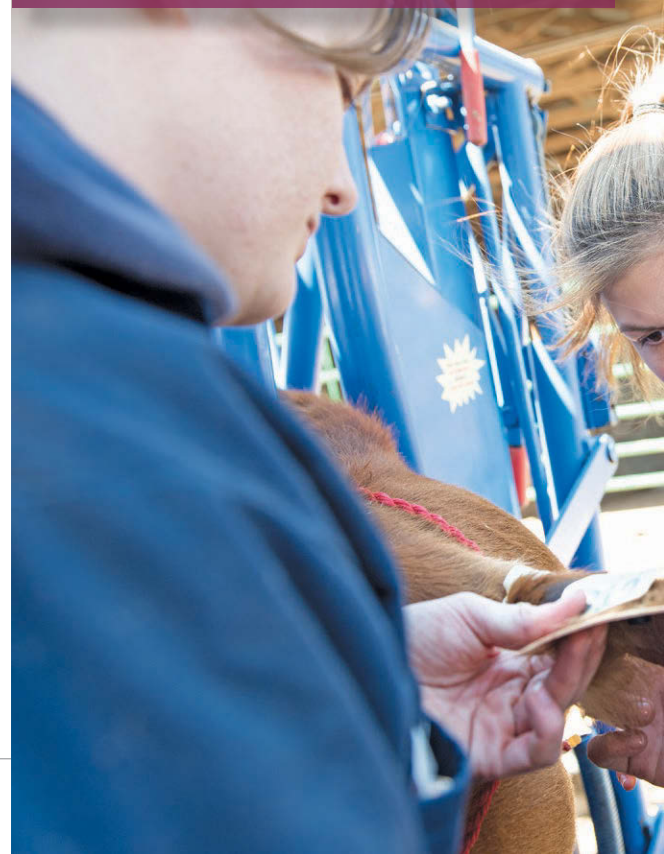
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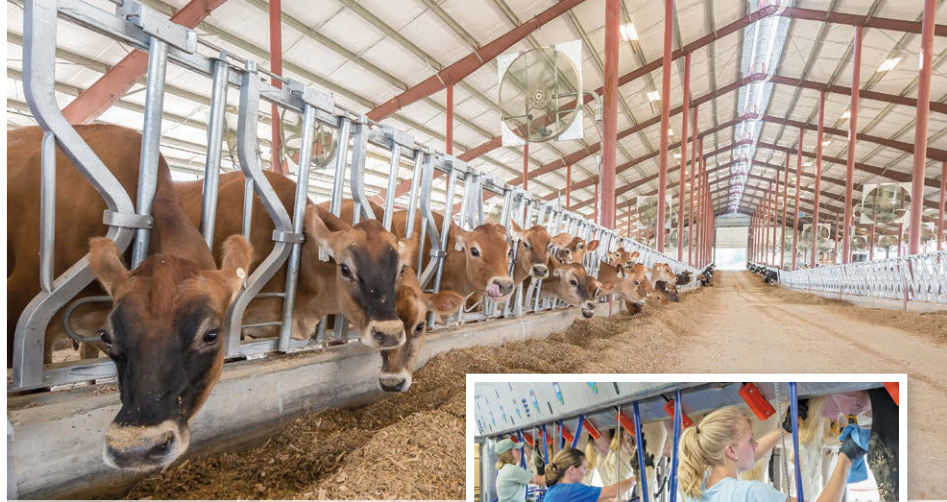


“

We benefit from our partnership with the College of Agriculture and Life Sciences not only in the food animal caseload at the Veterinary Teaching Hospital, but also in the clinical teaching experiences that we offer our students...

”





A new dairy complex at Kentland Farm

Written by: Zeke Barlow

This summer, Virginia Tech completed construction of a state-of-the-art \$14 million Dairy Science Complex at Kentland Farm that is already serving as a resource for teaching and research at the College of Agriculture and Life Sciences and the Virginia-Maryland College of Veterinary Medicine.

In addition to bolstering the long-term success of the university's dairy science program and contributing to its land-grant mission, the new complex gives students hands-on, experiential learning opportunities. The veterinary college, which provided consultation on the new facility's design, has already used the Dairy Science Complex as a teaching tool for fourth-year students on clinical rotations and for other students participating in wet labs.

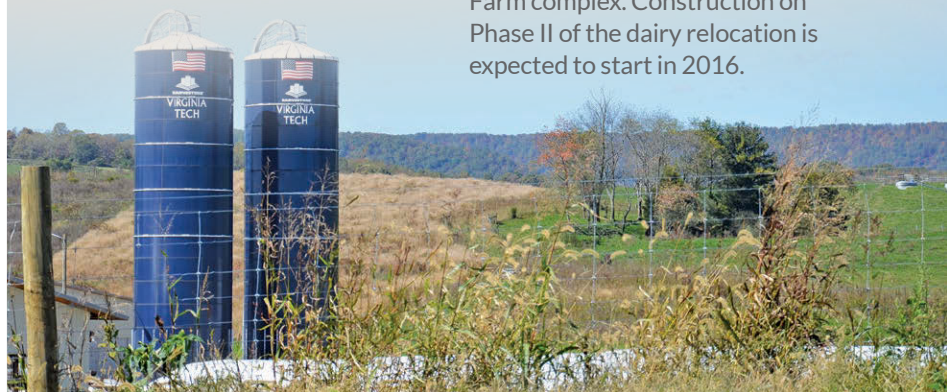
In July, a grand opening for the complex was held in conjunction with a field day sponsored by the Virginia State Dairymen's Association and the Virginia Cattlemen's Association and featured comments from Virginia Tech President Timothy D. Sands, Virginia Secretary of Agriculture and

Forestry Todd Haymore, and head of the Department of Dairy Science Mike Akers.

Located less than 10 miles from Virginia Tech's Blacksburg campus, the new dairy facility includes an 11,900-square-foot milking parlor with a double 12 parallel milking system and a computerized milk-monitoring system, a 46,000-square-foot freestall barn where the 232 milking cows will be housed, a modern waste management system, a special needs heifer barn, and a pre-weaned calf facility.

The dairy was moved from Southgate Drive because of an airport expansion and interchange construction project in Blacksburg and joins many other agricultural endeavors at the nearly 1,800-acre Kentland Farm.

The Virginia General Assembly has approved \$7.6 million in funding for Phase II of the dairy complex, which will include a demonstration facility located near Plantation Road, an applied reproductive physiology facility adjacent to the veterinary college, and an intensive metabolism research facility at the Kentland Farm complex. Construction on Phase II of the dairy relocation is expected to start in 2016.





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Several veterinary students have gained hands-on livestock experiences at the Virginia Tech Sheep Center. Sierra Guynn, clinical assistant professor of production management medicine, arranges with the Department of Animal and Poultry Sciences for veterinary students to watch for the arrival of new lambs when animal science students, who are on lamb watch as part of their coursework, are unavailable.

Jessica Lambert, a third-year veterinary student from Frederick, Maryland, explained that lamb watch gave students like her first-hand experience with basic tasks needed to process newborn lambs, such as tubing the lambs with colostrum — a form of milk produced in late pregnancy — if they have not nursed yet.

“The lamb watch program is a mutually beneficial experience,” she said. “We positively influence the health of the ewes and lambs while getting to learn about the process.”

Erica Izer, a third-year veterinary student from Greencastle, Pennsylvania, agreed.

“This experience especially helps the Virginia Tech farm manager,” said Izer, who is also president of the Food Animal Practitioners Club and had previous lamb watch experience through the club. “We provide more manpower during the lambing process, and a veterinarian is always on call if we are in a situation that we can’t handle.”

A research mission

Researchers, too, benefit from the strong connections between the two colleges. Kiho Lee, assistant professor of animal and poultry sciences, is partnering with scientists at the veterinary college to develop swine vaccines and improve productivity on the farm. His research involves developing pig models to provide a suitable platform for vaccine development.

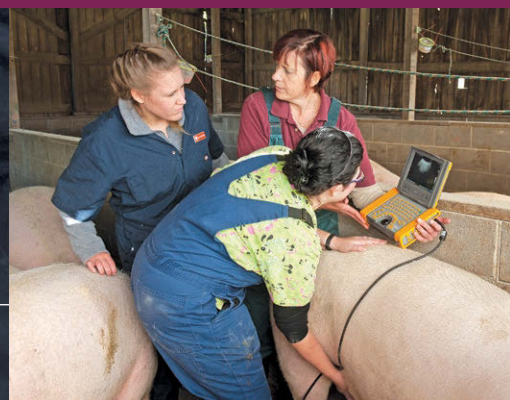
“Novel pig models can provide a platform to examine vaccines against a large number of infectious diseases,” Lee said.

He is working with Lijuan Yuan, associate professor of virology and immunology in the Department of Biomedical Sciences and Pathobiology, to develop improved norovirus vaccines using the veterinary college’s gnotobiotic pig facility. When Lee and Yuan work together to develop vaccines, they are also making inroads in hog production.

“Basically, I am a pig farmer,” Lee said. “I’m still interested in production. The question I am asking is how can I produce these animals at a high rate with a high efficiency.”

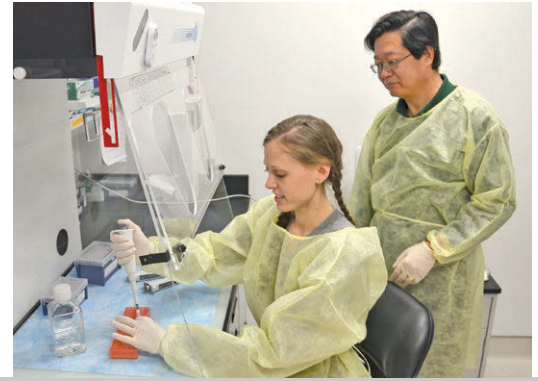
Lee is also working with Clark to study the physiology and pathology of swine reproductive systems through embryo transplantation. Their partnership is one of many between researchers at the veterinary college and College of Agriculture and Life Sciences.

Amy Loeffler, science writer for the College of Agriculture and Life Sciences, contributed to this article.





Swine RESEARCH



Top right: Danielle Yugo (left), a Ph.D. candidate and veterinarian, and X.J. Meng (right) conduct research on hepatitis E virus.

Veterinary college researchers seek to reduce spread of economically devastating viruses, develop animal models of human disease, and reduce antibiotic use in swine

The pork industry is big business in the United States. According to the latest figures from the National Pork Producers Council, the nation's pork producers market more than 112 million hogs and yield more than \$23.4 billion in gross receipts annually.

Researchers at the Virginia-Maryland College of Veterinary Medicine are applying their knowledge and training not only to study viral diseases affecting the U.S. swine population, but also to develop animal models of human diseases impacting millions of people globally.

When an emerging swine virus with high mortality rates first appeared in the United States in 2013, X.J. Meng, University Distinguished Professor of Molecular Virology, jumped at the opportunity to investigate further the emergent virus. Within a few months after its discovery, Meng traced the origin of porcine epidemic diarrhea virus (PEDv) to a strain from the Anhua province in China.

"The virus typically only affects nursery pigs and has many similarities with transmissible gastroenteritis virus of swine," said Meng, who is in the Department of Biomedical Sciences and Pathobiology. "There is currently no vaccine against PEDv in the United States."

Meng investigates swine viruses that are "zoonotic," meaning they have the ability to cross the species barrier. Although the Meng laboratory is known as one of the world's leading hepatitis E virus research centers with several projects funded by the National Institutes of Health, Meng and his colleagues are also studying porcine circovirus type 2, porcine reproductive and respiratory syndrome virus, and torque teno sus virus — all emerging viruses causing economically important diseases in pigs.

The U.S. Department of Agriculture has awarded prestigious fellowships to four of Meng's postdoctoral associates so that they can further study swine viruses and potentially develop new or improved vaccines.

Meanwhile, Lijuan Yuan, associate professor of virology and immunology, is working to improve vaccines against two human pathogens — rotavirus and norovirus — using the swine immune system as a model for human viral gastroenteritis. Rotavirus leads to acute dehydrating diarrhea in infants and young children resulting in 500,000 deaths globally every year, while norovirus causes most of the epidemic nonbacterial outbreaks of gastroenteritis around the world.

According to Yuan, her laboratory uses a "gnotobiotic," or germ-free, facility to investigate the pathogenesis and immunity associated with these viral diseases and evaluate vaccine effectiveness. Research at the gnotobiotic facility, which rears animals in a sterile and controlled environment with exposure only to specific microorganisms, sets the veterinary college apart from many of its peers.

In 2014, Yuan received a Grand Challenges Exploration grant from the Bill & Melinda Gates Foundation to study how an imbalance of gut microbes, as well as a compromised intestinal immune system, negatively impacts the effectiveness of the rotavirus vaccine.

Three Virginia Tech research projects funded by a \$1.4 million gift from Smithfield Foods Inc. are also searching for ways to improve the health, reduce antibiotic use, and find alternative production methods for growing pigs — two of which involve veterinary college researchers.

William S. "Terry" Swecker, professor of production management medicine, and Brandy Burgess, assistant professor of epidemiology and infection control in the Department of Population Health Sciences, are leading one study that targets strategic intervention for the swine flu virus, which spreads easily and often leads to secondary infections that are costly to treat. Likewise, Nammalwar "Nathan" Sriranganathan, professor of bacteriology, is investigating the viability of developing a recombinant vaccine to control boar taint, an offensive taste or odor that can affect pork made from male pigs, in a separate project.



ON THE FARM

ON THE ROAD



The veterinary college's Food Animal Field Services team makes routine and emergency visits to area farms—and educates students along the way

For more than 30 years, clinicians and students at the Virginia-Maryland College of Veterinary Medicine have been visiting Huckleberry Dairy in Floyd, Virginia, and watched it expand while other dairies in the region closed.

“We have been involved with the veterinary college even before the first class of students arrived,” said Mark Sowers, who owns the 650-acre family dairy and beef cattle farm with his brother, Curtis. “We like working with the veterinary school because it keeps us on the cutting edge of what’s new in the veterinary care of cattle. We have to be smart enough to help teach students about our own operations, and they have to be smart enough to use what they’ve learned in the classroom on the farm.”

Hundreds of veterinary students have visited Huckleberry Dairy over the years as part of their clinical rotation in production management medicine. In their fourth year, students explore all aspects of the veterinary profession through three-week rotating clerkships at the Veterinary Teaching Hospital and elsewhere. The college’s Food Animal Field Services team, which provides on-farm patient care and preventive health care to animals within a 35-mile radius of Blacksburg, is often one of the most popular.

“We find that students really like our rotation because they know that they are getting hands-on experiences with cases that large animal veterinarians would face every day on the job,” said Sherrie Clark, associate professor of theriogenology in the Department of Large Animal Clinical Sciences and section chief for production

management medicine. “Working with large animals also boosts their confidence as future veterinarians and gives them a sense of accomplishment.”

Unlike companion animal medicine which usually focuses on the health of individual patients, Food Animal Field Services takes a big picture approach that considers the health of entire herds. It operates an ambulatory service that accepts routine calls during business hours and provides 24-hour emergency care 365 days a year.

“I enjoy working with the producers and being able to help with their business,” said Rachael Gore, a fourth-year veterinary student from White Hall, Maryland. “This is different than companion animal medicine where you are treating a member of the family. We still work with individual animals on the farm, but you are looking more at herd health and the cost of care compared to the value of the animal.”

These economic considerations are particularly important in the struggling dairy industry. “When I came to Virginia, there were probably 40 dairies in Floyd County if you count all of the manufacturing-grade dairies, and now there are only 10,” said W. Dee Whittier, professor of production management medicine. “The ones that are surviving, for one thing, certainly had to get bigger.”

Top Left: The college’s Food Animal Field Services team operate several ambulatory trucks that provide both emergency and routine care. **Middle:** Veterinary students discuss the nutritional quality of the feed at Huckleberry Dairy. **Middle Right:** Veterinary students and owner Mark Sowers perform an exam on a young calf. **Right:** W. Dee Whittier, professor of production management medicine, performs an exam on a cow with a displaced abomasum that later needed surgery.



In the past 30 years, Huckleberry Dairy has expanded from approximately 50 to 225 dairy cows and from 10 to 200 beef cows. “As the number of dairy cows grew, the facility came to the point where it was really stretched,” Whittier said. “When it was time to make a decision, they chose to expand.”

Clinicians and students at the veterinary college consulted with the farm on the construction of a new barn, which utilizes a bedded pack instead of the more typical free stalls to improve udder health. In the two years since the barn opened, Huckleberry Dairy added 6,000 pounds of milk to its annual herd average. In addition to reproduction, vaccination, parasite control, and nutrition, Food Animal Field Services recently began offering what it calls “transition care” on the farm.

According to Whittier, the cows are moved to a different area three or four weeks before they are due to calve to give them optimal nutrition and comfort. Right after they calve, they move to a special needs area to ensure that they are metabolically healthy during a period of time when disease outbreaks, such as mastitis, are most common.

“We used to frequently see a condition known as ‘displaced abomasum,’ ” said Whittier, who explained that the condition involves the cow’s twisted lower stomach and requires surgery. “It’s a great teaching opportunity, but it causes a significant loss of production for the cow when she is supposed to be milking. Since we began our transition care program, we only have one every three or four months when there was a time we had one almost every week.”

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58,825

Field service animal cases per year

4,228

NUMBER of CALLS



CATTLE



EQUINE



SHEEP



GOATS



PIGS



MISC.

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When students visit farms like Huckleberry Dairy, they gain hands-on experiences that will prove valuable after graduation. “I am attracted to the field mainly because you get to be outside, you’re on your feet, and you are going different places, not just in one practice all day,” said Sarah Thorne, a third-year veterinary student from Columbia, Maryland.

Mary Weatherman, another third-year veterinary student from Roanoke, Virginia, agreed. “I like the diversity that you see in food animal medicine,” she said. “You’re out in the truck and outside every day. Sometimes you are traveling 30 minutes or further, so the truck gives you valuable time to learn from the clinicians. They are constantly quizzing you and keeping you on your toes so that you know what to do prior to getting out there.”

“

Our goal for them is to not only learn food animal medicine and surgery, but also to be ambassadors for the veterinary profession, especially for the use of veterinary medicine in agriculture.

”

Even though not all students on a production management medicine clerkship plan to make farm calls after graduation, they all benefit from the experience.

“For the majority of students who aren’t going into food animal medicine, it allows them to see a different type of medicine and gain an appreciation for how food is raised from conception to consumption,” said Kevin Pelzer, professor of production management medicine. “Our goal for them is to not only learn food animal medicine and surgery, but also to be ambassadors for the veterinary profession, especially for the use of veterinary medicine in agriculture. As future veterinarians, they will be addressing society’s questions about animal welfare, antibiotic use, food security, and a whole host of other issues.”



When W. Dee Whittier, professor of production management medicine in the Department of Large Animal Clinical Sciences, began working for the newly formed veterinary college’s ambulatory service in the early 1980s, he would occasionally receive calls from the Bland Correctional Center. The prison, which was in the Veterinary Teaching Hospital’s 35-mile practice area, had a 650-head beef cattle operation with a need for veterinary care.

“After I started to do some work at the Bland County facility, we realized that we could set up a health program there,” said Whittier, who is also a bovine specialist for Virginia Cooperative Extension. “I began going over there regularly and helping with reproduction, nutrition, vaccinations, and parasite control.”

This relationship expanded over the years to include referrals to other livestock operations at state prisons, such as a dairy at the James River Correctional Center and a swine unit at the Southampton Correctional Center. This caught the attention of Department of Corrections (VDOC) officials who wanted to increase their farm efficiency, especially in the area of reproduction.

“Because artificial insemination typically involves synchronization, which requires prescription drugs, they needed veterinarians,” Whittier said.

In 2000, the veterinary college and VDOC signed a memorandum of understanding that formalized their relationship but also allowed VDOC to continue to work with local veterinarians. Today, the college’s Food Animal Field Services provides reproductive, medical, and surgical care for more than 2,400 beef



THE VETERINARY TEACHING HOSPITAL'S NO. 1 CLIENT

A long-standing relationship with the Virginia Department of Corrections yields valuable teaching opportunities for the college's Food Animal Field Services

cows at 21 locations owned by VDOC, which now boasts the largest caseload at the Veterinary Teaching Hospital.

When clinicians provide care for cattle and other livestock at correctional centers, they take fourth-year students on clinical rotations with them. Fourth-year veterinary student Ashley Hoss gained hands-on experience during a recent trip to the Southampton Correctional Center.

"We started working around 7 a.m. and implanted CIDRs (controlled internal drug release) to do estrus synchronization on about 200 beef heifers," said Hoss, who grew up on a sheep farm in Chilhowie, Virginia. "After that, they were having an issue with pink eye in their herds, so while we were weighing and sorting them, we went through and treated them for pink eye if they needed it and rechecked the ones we had already treated for pink eye."

In total, Hoss and her classmates in their production management medicine rotation saw between 400 and 500 beef heifers, some of which weighed as much as 800 pounds.

Veterinary students also assist with a biannual training for VDOC farm managers on Virginia Tech's campus and have helped with other initiatives over the years. According to Kevin Pelzer, professor of production management medicine, students were instrumental in the establishment of a goat

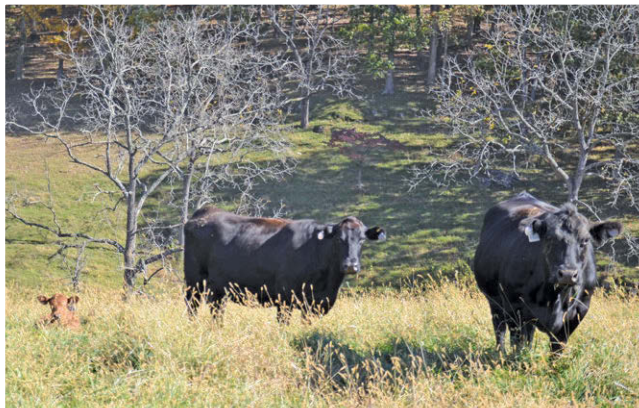
startup at the Halifax Correctional Unit in 2014.

"They participated in every aspect of the three-farm project, including animal selection, nutrition, vaccinations, parasite control, and breeding," Pelzer said. "The goat startup is still going strong today."

Students are not the only ones who gain knowledge and skills from the partnership. Whittier and his colleague John Currin, clinical associate professor of production management medicine, provide Beef Quality Assurance certification to offenders working on the farms. After they serve their time, these offenders are able to work on beef cattle operations because of the education and training they received.

VDOC sells the livestock raised at their locations and puts the money back into programs and services for offenders. In part because of the successful partnership with the veterinary college, VDOC officials have seen an increase in sales over the years.

"They have an agreement with a company that makes a branded beef product," Whittier said. "This company buys almost all of their steer calves at a premium, which gives some extra dollars to contribute back to the Commonwealth of Virginia."





A CHIMPANZEE Sanctuary

Third-year veterinary student Anna Katogiritis has one-of-a-kind summer experience with Jane Goodall Institute

When Anna Katogiritis was volunteering at the Jane Goodall Institute's Tchimpounga Chimpanzee Rehabilitation Center in Congo, she helped care for an 8-year-old chimp named "Podive" who remains close to her heart. Rescued at an early age, Podive, which means "trouble," requires constant medical care because of a hepatitis B infection.

"Every day between 1 and 3 p.m., when the others at the center were on break, I would go by his enclosure, sit on the ground, and either listen to music with him, talk to him, or just sit there as his company," said Katogiritis, a third-year veterinary student who preferred to think of Podive's name as meaning "a kind heart."

After several weeks, Katogiritis, who is in the college's mixed animal track, noticed a change in the chimpanzee's disposition toward her. "Whenever Podive would see me approaching his enclosed area, he would jump off the high structure that he sat on and run towards the very specific spot where we spent every day," she recalled. "A fence was always separating Podive and myself, but I guess there is no real obstacle to true friendship."



The Tchimpounga Chimpanzee Rehabilitation Center has more than 150 chimps like Podge and other monkeys and mandrills that have been rescued from various regions and circumstances and given a second chance. Katogiritis had a rare opportunity to volunteer at the center for two months this summer after giving a letter to Jane Goodall at a lecture in 2014. In response to the letter, Goodall sent Katogiritis an email connecting her with the staff members at the Jane Goodall Institute who were looking for someone like Katogiritis – someone who had worked with macaques and orangutans in Indonesia prior to veterinary school and had experience in parasitology research.

“While I was there, I was conducting parasitology studies at the center,” she explained. “Whenever I found infected chimpanzees or mandrills, I would then consult with the nurses, email my information to the chief veterinarian of the Jane Goodall Institute in Congo, and then have the animals treated by the veterinarian in charge.”

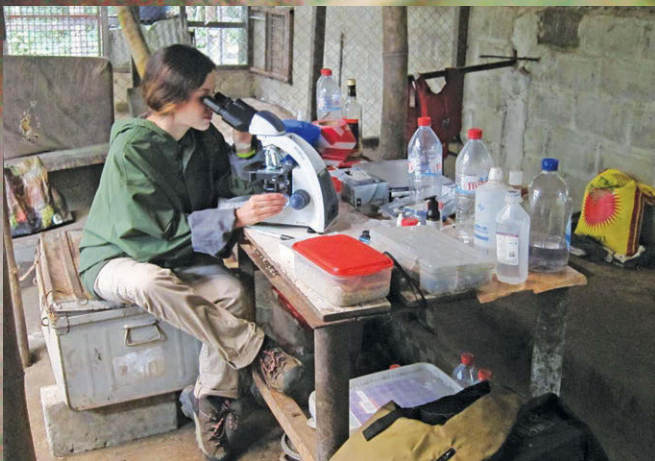
During her stay, Katogiritis also witnessed the strong bond between the chimpanzees and their caregivers. Although not every part of Congo has the same culture and traditions, the villages surrounding the sanctuary believe that their deceased loved

ones are reincarnated into chimpanzees. “Therefore, taking care of these animals is like taking care of a family member who passed away,” she said.

Katogiritis credits Jane Goodall, who is a United Nations messenger of peace in addition to a world-renowned primatologist, with inspiring her to pursue her dreams. Prior to volunteering at the center, Katogiritis attended the Veterinary Leadership Experience, where the value of “service” was discussed as an effective leadership technique. “Dr. Goodall uses the ‘lead by example’ technique by asking her followers to use her accomplishments as an inspiration for what they too can achieve. But rather than presenting herself as a unique and rare individual, Dr. Goodall demonstrates humility and a lack of self-importance,” said Katogiritis, who experienced Goodall’s compassion first-hand when she took the time out of her schedule to connect Katogiritis with the staff at the Jane Goodall Institute.

A native of Karpathos, Greece, Katogiritis hopes that her experiences with primates and animal behavior will inform her future veterinary career. After graduation, Katogiritis hopes to work in small animal surgical oncology and combine her interest in primate conservation.

© Jane Goodall Institute | Photos by: Anna Katogiritis



Above Left: Anna Katogiritis, a third-year veterinary student, checks samples for parasites at the Jane Goodall Institute’s mandrill release site at the Conkouati-Douli National Park in Congo. **Right:** Katogiritis poses with the staff at the Tchimpounga Chimpanzee Rehabilitation Center. The Jane Goodall Institute does not endorse interfering with or handling wild chimpanzees.

Veterinary Memorial Fund celebrates 30 years

Donations honor special connections with companion animals

When Libby Whitley of Lovingson, Virginia, found Rosie, a Walker coonhound, limping along the side of the highway, she made an instant connection. After finding out that Rosie's owner didn't want her back, Whitley kept Rosie on the family farm.

"Unlike many hounds that started life as hunting dogs, Rosie never roamed far, but was content to patrol 'her' nearby valley for rabbits when she wasn't camped out on the bench by the kitchen," Whitley said. "She lived a good, long life until cancer and other maladies took her away from us. We will always miss her loving, indomitable spirit."

To memorialize this special dog and the bond she shared with her owner, Rosie's veterinarian, Al Henry of Peaks View Animal Hospital in Lynchburg, Virginia, made a contribution to the Veterinary Memorial Fund on behalf of Rosie and her family.

This gift, along with others over the past 30 years, funds life-enhancing research at the veterinary college. Supported projects help develop knowledge, improve procedures, and perfect techniques in areas such as hyperthyroidism in cats, chemotherapy, wound healing, and equine laminitis. Established in 1985, the Veterinary Memorial Fund accepts contributions,

both small and large, from veterinarians and owners in memory of a pet, as well as from family and friends in memory of a person who loved animals.

Mark Finkler, owner of the Roanoke Animal Hospital and longtime contributor to the fund, emphasized how contributing can help pet owners and families during the grieving process. "By contributing to this fund on behalf of a client's cherished pet, I know that I'm helping to transform a profound loss into a meaningful legacy," he said.

Shawna Klahn, assistant professor of oncology in the Department of Small Animal Clinical Sciences, said she hopes that legacy is readily apparent in her Veterinary Memorial Fund-funded project, which has the potential to benefit dogs with cancer.

"We are in the middle of a clinical trial to find the appropriate dosage of a human chemotherapy drug, oxaliplatin, in dogs with cancer," Klahn said. "The overall goal is to expand the arsenal of anti-cancer agents that veterinarians can use in treating their canine patients."

The clinical trial began last year and is still enrolling dogs with solid tumors of

all types. According to Klahn, early results have shown that the chemotherapy drug is well tolerated by dogs. Researchers must first determine appropriate dosage of the drug before determining its effectiveness in fighting cancer.

Many of the Veterinary Memorial Fund grants support projects that may have a near-term impact on patient care. For example, Noah Pavlisko, assistant professor of veterinary anesthesiology, and his colleagues used an \$18,000 grant to develop a better way to monitor oxygen delivery to critically-ill veterinary patients.

Established in partnership with the Virginia Veterinary Medical Association and the Maryland Veterinary Medical Association, the Veterinary Memorial Fund has raised almost \$1.5 million for more than 100 research projects.

Donations boost core support for the college's clinical research at the Veterinary Teaching Hospital and enable more animals to benefit. In November, the college hosted an event to connect donors with clinical researchers and unveiled a new donor wall at the teaching hospital entrance to recognize gifts of \$2,500 and above.

Photo by: Narrow Gate Farm

Skewered

Curtis, a Veterinary Teaching Hospital patient who snacked on a BBQ skewer, wins national competition

Curtis always had a habit of eating things he shouldn't. But it wasn't until the boxer, who is now 5, ate a wooden BBQ skewer that he suffered a life-threatening injury. Curtis not only lived through the year-long ordeal but also won a competition for the most unusual pet insurance claim in the country.

After owner Valerie Mould of Princeton, West Virginia, realized that Curtis had eaten the skewer during a family event to celebrate the birth of their daughter, she took him to a local veterinarian. She was told to watch Curtis closely, but the following morning, Curtis vomited and collapsed. The family brought Curtis to a local emergency animal hospital which referred him to the Virginia-Maryland College of Veterinary Medicine for treatment.

David Grant, associate professor of internal medicine in the Department of Small Animal Clinical Sciences, performed an ultrasound and endoscopy, but he and his colleagues at the Veterinary Teaching Hospital found no evidence of the skewer. Curtis spent two days in the hospital's intensive care unit.

"No matter how hard they tried, they couldn't find the skewer," Mould said. "There were no signs that it punctured anything either, so they believed it had possibly broken down in his stomach."

After more monitoring and tests, Curtis was sent home. A few months later, he became lethargic and irritable and lost his appetite.



Pictured Above Curtis (l-r): Tom Mould; Matthew Mould; Madelyn Mould; Valerie Mould; David Grant, associate professor of internal medicine; Marian Benitez, clinical assistant professor of small animal surgery; and Rick Hiller, hospital administrator.

The Mould family took Curtis to a local veterinarian several more times before returning to the Veterinary Teaching Hospital. Grant and his colleague Kemba Clapp, assistant professor of radiology, found a baseball-sized mass between his stomach and pancreas. Marian Benitez, clinical assistant professor of small animal surgery, recovered the long-lost skewer while performing surgery to remove the mass.

"After nearly a year after ingestion, the body worked hard to wall off the wooden skewer by encapsulating it," Benitez said. "The body as an organ never ceases to amaze me."

“

This was such an unfortunate experience for Curtis, but we hope that some good will come to other pets as a result of this recognition.

”

With the skewer removed, Curtis returned to his old self. "Ever since he was healed, he's been doing great," Mould said. "He's eating again and energetic. We are so happy to see that Curtis has his personality back."

Afterward, Curtis was nominated by Nationwide for the 2015 Hambone Award, which recognizes the most unusual pet insurance claim of the year. Curtis received the most votes from the public during an online competition, beating out the 11 other pets nominated for the award. Because of his successful treatment at the Veterinary Teaching Hospital, the college also received a \$10,000 Nationwide-funded award through the Veterinary Care Foundation to treat pets whose owners could not otherwise afford treatment.

"This was such an unfortunate experience for Curtis, but we hope that some good will come to other pets as a result of this recognition," Mould said.



Class Acts: These faculty members represent the Va-Md Vet Med departments of—Biomedical Sciences and Pathobiology, Small Animal, Large Animal, and Population Health Sciences.



Michelle Theus

Assistant Professor of Neuroscience. Dept. of Biomedical Sciences and Pathobiology
Years at Va-Md Vet Med: 4

Why did you choose to work at Virginia Tech and Va-Md Vet Med? Virginia is now poised to become “The Brain State.” The environment and leadership at Virginia Tech presented an extraordinary opportunity for me to establish a competitive research program aimed at understanding and treating stroke and traumatic brain injuries.

What is a fact about you that few people know? Trite but true: I quickly became interested in becoming a scientist after watching the early '90s movie, *The Medicine Man*. I was convinced that studying cancer therapeutics in the jungle was the life! It wasn't until I entered graduate school under Dr. Ling Wei's tutelage that I understood how important the brain was. I never looked back.

Your favorite place to travel? The Shenandoah valley, VA. My grandparents were born there but left to raise their family in Ohio. I traveled back there many times as a child with my father. My favorite memory is playing barefoot in the river and building rock dams. My uncle also owned the local Seneca Caverns.



J. Phillip Pickett

Professor of Ophthalmology
Dept. of Small Animal Clinical Sciences
Years at Va-Md Vet Med: 15

What do you love most about your work at the vet school? Helping my patients, owners, and referring veterinarians while getting to serve the citizens/taxpayers of the Commonwealth by teaching veterinary students the art and science of veterinary medicine.

If you could choose one animal to be like, what would that be and why? A terrier. Their enthusiasm for everything and their limitless energy are enviable.

Your favorite restaurant to eat at in Blacksburg? Five Guys. As my wife, Lynda, told me on our first date, my tastes are “plebeian” (I had to look it up).

What is your greatest accomplishment? Marrying my wonderful wife of 32+ years, Lynda, and rearing two fine sons, Luke and Matthew.

What would you attempt if you knew you could not fail? I would love to represent the United States at the Olympic games. I can think of nothing more gratifying than seeing that American flag being raised and our National Anthem being played after winning the biathlon or canoe competition for my country.



Virginia Buechner-Maxwell

Professor of Clinical Services and Medicine. Dept. of Large Animal Clinical Sciences
Years at Va-Md Vet Med: 20

Why did you choose to work at Virginia Tech and Va-Md Vet Med? I knew that I wanted to teach, participate in research, and practice veterinary medicine before I entered veterinary college, so I always felt like I'd end up in academic medicine. The first time I came to Blacksburg was to interview for admission to the veterinary degree program, and I thought it was one of the most beautiful places I'd ever been, especially the mountain views. Following that visit, I was admitted to the fourth class at Va-Md and completed the professional degree program at this college.

What are you most proud of? After I finished college, I was hired to teach in a small inner-city high school in Washington D.C. Many of the students came from difficult family situations and/or had emotional problems. The people that established and taught at the school with me were exceptionally creative and committed educators and they provided the students a safe place in which to learn.

Do you have any pets? I have too many cats (but they are family), two dogs, and six horses.



Kathy Hosig

Associate Professor of Population Health Sciences
Years at Va-Md Vet Med: 5

What do you love most about your work at the vet school? The opportunity and flexibility to pursue public health research and teaching activities that keep me motivated and engaged in making a difference in the lives of my students and the communities in which I work. I also love the positive and supportive atmosphere.

What is your greatest accomplishment? Being a mom and wife in my complicated but wonderful family, while being able to pursue my professional interests to the level that I have. We have three biological children and adopted a younger sibling group of three almost three years ago.

What would you attempt if you knew you could not fail? Develop a public health system in which no child was ever abused, neglected, or brought into the world unwanted. All children deserve respect, unconditional love, kindness, and support to reach their full potential.

Your favorite place to travel? Malaysia. I had the opportunity to travel there for the first time in May 2014 as a participant in the Virginia Tech International Faculty Development Program. I had no idea how much I would enjoy the rich culture and friendly and beautiful people there.



Small Animal Community Practice earns cat-friendly, low-stress certifications

Pet owners can be confident that their furry friends are in the best of care at the Veterinary Teaching Hospital.

The hospital's Small Animal Community Practice, which provides primary and preventive care for clients within a 35-mile radius of Blacksburg, received two new certifications this year. In June, the American Association of Feline Practitioners recognized the clinic with a Cat Friendly Practice certification at the silver level. In May, it received a Low Stress Handling certification at the silver level through a separate program.

The Cat Friendly Practice certification program seeks to improve the treatment, handling, and overall health care of cats by equipping veterinary practices with the resources needed to evaluate their standards of care.

"For general practices, the idea is that we appreciate cats, we understand cats, and we are trying to make you and your cat's veterinary visit as easy and low-stress as possible," said Michael Nappier, assistant professor of community practice. "For university practices such as ours, this also means that we are teaching students that it is not just business as usual when treating cats in a clinical setting."

Meanwhile, the silver-level Low Stress Handling certification recognizes the clinic's good-natured environment for both dogs and cats and requires more than half of its veterinarians and staff to earn individual certifications.

The Veterinary Teaching Hospital is one of only three university hospitals to earn the cat-friendly certification and the first to earn the low-stress certification.

Left: Amanda Conrad, licensed veterinary technician, helped provide care for Hagan, an 8-week-old kitten found with two broken legs. **Right:** Michael Nappier provides care for Oscar, an 8-week-old kitten found on Virginia Tech's campus.



Human-animal bond symposium returns to college

The college's Center for Animal Human Relationships presented a one-day symposium, "The Animal Human Experience: Exploring the Bond," in September that drew approximately 100 participants who explored the benefits and challenges of human-animal interactions, services, and therapies.

Philip Tedeschi, executive director and co-founder of the Institute for Human-Animal Connection at the University of Denver's Graduate School of Social Work, highlighted the human side of the human-animal bond. After describing his evidence-based research and experience on the therapeutic potential for animals in human health, Tedeschi evinced the public safety and risk factors associated with animal abuse.

These themes continued throughout symposium presentations on equine-assisted psychotherapy, animal abuse as an indicator of abuse of vulnerable populations, service dogs helping veterans heal, and the health of search and rescue dogs at the World Trade Center on 9/11. The event also included a recognition ceremony for Saint Francis Service Dogs and a panel discussion on animal-assisted therapy on campus.



Top: Philip Tedeschi, clinical professor and executive director of The Institute for Human-Animal Connection at The University of Denver within the Graduate School of Social Work, provided the symposium keynote presentation titled "Nature's Social Union: Global Perspectives on the Human-Animal Bond." **Bottom Left:** The symposium program included the Booker Willoughby Recognition Ceremony, which honors an exemplary organization that trains, utilizes, and cares for service animals.





From restaurant manager to public health student

Ashley Briggs' practicum in the New River Health District looks to overcome cultural differences and improve public health

Two years ago, Ashley Briggs was working as a restaurant manager in Christiansburg, Virginia, when a health inspector visited. Briggs, who had recently completed a bachelor's degree in biology from Roanoke College, not only passed the inspection but also started up a conversation with the inspector that took her down a new career path.

"He persuaded me to look into graduate school," said Briggs, who is now a second-year Master of Public Health student. "That led me into public health as a profession. Once I was in the program, I saw how diverse and expansive the opportunities were."

Today, Briggs is putting her restaurant experience to use in a practicum with the New River Health District, where she is poring through Montgomery County's health inspection data to find education gaps and cultural barriers that contribute to violations at area restaurants. In May, the college formalized its relationship with the health district to encourage collaboration on projects like Briggs' practicum.

"Is it a mom and pop restaurant that

doesn't have the same type of training as a corporate entity?" said Briggs, who is mining through data from over 780 active restaurants and categorizing them based on types of critical violations associated with food-borne illness. "Is it a corporate entity that's cutting corners? Is it a Mexican restaurant where we are giving them materials in English but they need them in Spanish? Is it a Chinese restaurant which needs materials in Mandarin?"

Briggs is creating remedial tools such as flyers, online modules, and workshops geared toward groups experiencing the most violations.

"When there are lapses in judgement and people get sick, then an entire epidemiological team has to figure out what happened," she said. "Instead of reverse-engineering the process to find out what's wrong and educating one individual, I want to make sure everyone's educated. It's about prevention instead of post-exposure intervention."

Briggs, who is pursuing an infectious disease concentration, hopes that the practicum will better prepare her for a future career as an epidemiologist.

ALUMNI CORNER: Where Are They Now? A Celebration of Our Alumni and Their Achievements

Christine Christensen — Trail veterinarian



Alaska may not be a preferred vacation destination for everyone. For Maj. Christine Christensen (DVM '00), however, the frozen tundra offers the perfect escape from Washington, D.C., where she works as a veterinary pathologist.

While stationed in Fort Wainwright, Alaska, with the U.S. Army from 2003 to 2006, Christensen discovered dog sledding. Since then, she has spent her vacation time volunteering as a trail veterinarian and pathologist for major dog sled races, such as the Yukon Quest and the Iditarod. Each race is 1,000 miles long and takes about two weeks to complete.

"It's exciting to be a part of something that's so different than what I'm usually exposed to," Christensen said.

Chris Runde — Legislative advocate



When most veterinarians read about the Veterinary Practice Act, they are completing a licensing requirement and rarely take a second look. Chris Runde (DVM '85) felt the same way

until his 30-year professional journey took a detour.

Veterinary law and its application are now important parts of Runde's career. The owner of a thriving mixed animal practice in St. Mary's County, Maryland, Runde was elected president of the Maryland State Board of Veterinary Medical Examiners in 2004 and held this position for 10 years. During that time, he helped introduce changes to the Veterinary Practice Act, including one that allows fourth-year veterinary students to perform simple surgeries under the supervision of a licensed veterinarian.

Runde now serves on the board of directors for the American Association of Veterinary State Boards.

Veterinary researchers target Lyme disease

According to the latest figures from the Centers for Disease Control, Lyme disease is the most common vector borne disease in the United States with more than 30,000 reported cases and as many as 300,000 likely human cases every year. Researchers at the Virginia-Maryland College of Veterinary Medicine are using several approaches to better understand this disease.

Utpal Pal, associate professor at the University of Maryland's Department of Veterinary Medicine, has received several major grants to investigate the tick-borne disease's cause and potential control strategies.



In 2014, he received a \$1.5 million grant from the National Institutes of Health (NIH) to continue his research on how the Lyme disease agent, *Borrelia burgdorferi*, can adapt to and survive in a variety of different hosts, such as deer ticks, mice, dogs, and humans. In 2015, he was awarded another NIH grant to study how a specific protein allows the bacterium to survive in the host and vector.

"*Borrelia* is so interesting because it doesn't actually produce any toxins that we know of but induces an immune response in the body that causes inflammation," said Pal, who also plans to use some of his research findings to develop new interventions against Lyme disease. "It also looks different inside each host it infects."

In memoriam: Elankumaran Subbiah, associate professor of virology

Elankumaran Subbiah of Blacksburg, associate professor of virology in the Department of Biomedical Sciences and Pathobiology, passed away on Sept. 2 in Chennai, India, following a brief illness.

Subbiah, 55, was in India overseeing a veterinary student exchange program with his alma mater, Tamil Nadu Veterinary and Animal Sciences University (TANUVAS). He is survived by his wife, Ruby, sons Pradeep and Praveen, granddaughter Nila, his mother, five brothers, and two sisters.

A nationally renowned virologist who joined the college faculty in 1999, Subbiah studied human and animal viruses and the control of diseases produced by them. He also investigated the use of certain viruses as treatments for invasive tumors and the development of novel, non-invasive immunization strategies to control viral diseases. Subbiah was also instrumental in the development of an exchange program between the Virginia-Maryland College of Veterinary Medicine and TANUVAS.



Left: The deer tick can carry the bacterium responsible for Lyme disease. Top: Anne Zajac, parasitologist and tick expert, has found high numbers of deer ticks carrying the Lyme disease agent in Virginia's New River Valley.

Although Lyme disease cases are most prevalent in New England, Anne Zajac, professor of parasitology in the Department of Biomedical Sciences and Pathobiology, discovered high incidence rates in the Virginia's New River Valley. In 2014, she co-authored a paper in *Vector-Borne and Zoonotic Diseases* revealing that as many as one-third of deer ticks collected from sites in Giles and Pulaski counties carry *Borrelia burgdorferi*.

Even though the American dog tick, which does not carry the disease, was previously thought to be the region's predominant tick species, the deer tick population has expanded in recent years. "The deer tick does well in cold weather, so even in the winter, people have to be vigilant," Zajac said. "Pet owners also need to be concerned about ticks and seek tick protection for dogs and cats year-round."

The Virginia Department of Health has reported high rates of confirmed Lyme disease cases among Southwest Virginia residents. Daniel Muelhaupt, a fourth-year veterinary student who is a dual degree student in the Master of Public Health (MPH) program, is comparing human records of exposure and infection in the New River Valley to test results from canine patients at the college's Small Animal Community Practice.

"I anticipate finding a positive association between canine Lyme disease exposure rates and locations and human exposure rates and locations," said Muelhaupt, who conducted the research for his MPH practicum. "This information will add to the epidemiological research of Lyme disease and aid in the development of further education, prevention, and control strategies."



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Upcoming Events

January 8 – 5th Annual Equine & Food Animal Conference

April 8 – DVM Program Spring Awards Luncheon

April 9 – 2016 Annual College Open House

June 10-11 – Human and Animal Health: We're All In This Together

Spring Dog Wash – Stay tuned to our website and Facebook for more information.

Make a Difference

It's always a great time to give! By helping us to advance our strategic priorities and fulfill our mission of training veterinarians, your gifts also benefit pet owners, industry, and society at large.

To support the college or learn more about ways to give, contact our Development Office at 540-231-4716 or visit us online at www.vetmed.vt.edu/development

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Above: Bess Pierce, director of the Center for Animal Human Relationships, holds Koda, a 9-week-old Labrador retriever, at a ceremony to celebrate the launch of a new puppy raiser program. The veterinary college has teamed up with Saint Francis Service Dogs, a Roanoke-based nonprofit which helps children and adults with disabilities, to raise three puppies until they are 14 months old and ready for formal service dog training. While at the veterinary college, the charter class of "Puppy University" will learn foundational skills such as walking on a leash and interacting with other animals in safe situations.