UCDAVIS VETERINARY MEDICINE

School Updates and Impacts
June 2018

STATE OF THE SCHOOL ADDRESS 2018

In his annual State of the School address, Dean Michael Lairmore congratulated the school's community for achieving the top spot among veterinary schools in the world by QS World University Rankings for the fourth year running. He credits that honor to the school's ability to attract the best and brightest students, and a community of faculty and staff dedicated to compassionate care, clinical innovation, and ground-breaking research.

The school's $85 million high-impact transdisciplinary research budget funds a research enterprise larger than any other veterinary schools by more than $30 million. The Class of 2022, a group of 150 with 48 percent from underrepresented minority groups, will begin in August. The veterinary hospital provided outstanding patient care with the most advanced clinical techniques to more than 50,000 patients. Over the past year, success stories include a complete hip replacement on a champion show dog, a laceration repair surgery that saved a horse's athletic career, identifying genetic causes of glaucoma in cocker spaniels, and the development of immunotherapy in dogs that will lead to human clinical trials.

School stories made national and international headlines. One of the highlights was Dr. Jamie Peyton's innovative use of tilapia fish skin to treat burn wounds of two bears and a mountain lion that were injured in the California wildfires in the fall of 2017. Her expertise was called upon recently to assist a seriously burned pony in the U.K.

Dean Lairmore highlighted other activities and accomplishments during the past academic year including:

- Election of Drs. Patricia Conrad, Jonna Mazet, and Stephen McSorley to the American Association for the Advancement of Science.
- Dr. John Madigan recognized with a special Congressional certificate for his help in saving animals in the aftermath of fires in Napa and Sonoma counties
- Launch of the Global Virome Project—a 10-year effort to identify most viruses with potential to cause disease in humans
- Reducing pandemic risk globally through PREDICT training of more than 4,000 professionals world-wide
- Establishing the Planetary Health Center of Expertise through the UC Global Health Institute with Dr. Woutrina Smith serving as co-director
- Extending leadership in clinical education with new fellowships in nephrology and extracorporeal therapies
- Public launch of the Veterinary Medical Center Campaign in the fall of 2017
- Philanthropic gifts totaling more than $46 million since July of 2017

The full presentation can be viewed at:
www.vetmed.ucdavis.edu/local_resources/pdfs/State-of-School-Address-2018.pdf

CLASS OF 2018 COMMENCEMENT

Congratulations to the Class of 2018 who received their degrees from the UC Davis School of Veterinary Medicine in its 67th Commencement Ceremony held at the Mondavi Center on May 26th. Among those graduating were 133 DVM students, 30 residents and seven students in the Master of Preventive Veterinary Medicine program.

Chancellor Gary May welcomed all in attendance and encouraged graduates to live by a simple tenet: try every day to help someone. He likened the grads to turtles on a fencepost; they didn't get there by themselves. Our success is built on the help of others, he said.

Associate Dean of Academic Programs Jan Ilkiw presented Jose Guerrero Cota with the school medal, the highest honor for a graduating DVM student in recognition of outstanding academic and clinical performance. On hand to see his achievement were his immediate and extended families, the Haas and Lopez families. Jose Cota was the first recipient of the Francisco "Pancho" Lopez Scholarship, established by Bob Haas to provide four years of support for a Hispanic student entering veterinary school. The inspiration was to honor "Pancho" Lopez, a close friend of the Haas family and an accomplished horseman, responsible for the care of some of the world's foremost equine athletes in showjumping.

Dr. Patricia Pesavento was selected as the faculty speaker by the students. "I've never really questioned the intelligence of this class until now—why am I here?" she said to roars of laughter. After a few more jokes, Pesavento provided a bit of wisdom. "Being an excellent clinician means living with what you don't know. Be humble about medicine, but not about who you are. Know that we are all deeply proud of you. Class of 2018, you have SO got this!" Her last words brought the students to their feet in a standing ovation.

Dean Michael Lairmore urged graduates to be resilient—to live life by a compass not a clock, in the words of Stephen Covey. He introduced Jordan Cole, the selected student speaker, who built on the dean's theme of building resilience.

"UC Davis Vet Med is more than a community, it is a village," Cole said. "It takes a village to raise a veterinarian.

2018 ALUMNI ACHIEVEMENT AWARD RECIPIENTS

Each year the school honors members of its alumni with an Alumni Achievement Award. This award is the highest honor bestowed by the school. This year's 2018 Alumni Achievement Award Recipients are:

- **Stanley Creighton**, DVM, DACVIM, President-Creighton Consulting and Founder Emeritus, NVA. Dr. Creighton receives this award in recognition of his vision, effort, and leadership as the founder of National Veterinary Associates.
- **Howard Hill**, DVM, MS, PhD. Retired. Dr. Hill receives this award in recognition of his contributions to the health and welfare of swine and to the nation's pork industry.
- **Philip Kass**, DVM, MPVM, MS, PhD, DACVPM, Vice Provost of Academic Affairs, UC Davis. Dr. Kass receives this award in recognition of outstanding achievements in epidemiological research, extraordinary collegiate support, and distinguished leadership to enhance veterinary medical faculty diversity and equity.

- **Jon Klingborg**, DVM, Owner-Valley Animal Hospital in Merced, CA. Dr. Klingborg receives this award in recognition of his extreme dedication, leadership and tireless commitment to the health and welfare of the veterinary profession and animal patients.
- **Pamela Ruegg**, DVM, MPVM, DACVPM, DABVP, Professor and Extension Milk Quality Specialist, Department of Dairy Science, University of Wisconsin-Madison. Dr. Ruegg receives this award in recognition of her extraordinary service to dairy farmers, dairy cattle, and consumers of dairy products around the world.

NEW LEADERS

Brandy McCall joined the school as our new Assistant Director of Outreach and Admissions. Prior to her arrival at the school, McCall served as the Recruiting and Outreach Manager for the Thomas J. Long School of Pharmacy and Health Sciences at University of the Pacific. McCall earned her B.S. in Business Administration from Sacramento State University and an M.B.A. from Colorado Christian University, with special emphases in Marketing and Corporate Training.

As Assistant Director, she will split her time among three major areas: outreach, programs and partnerships, and information sharing. She will execute outreach activities to identify underrepresented and high-achieving California middle school and high school students with an interest in veterinary medicine. Additionally, she will develop partnerships on campus (Animal Science and Biological Sciences), and with regional and national organizations that promote student diversity and inclusive excellence.

FACULTY RECRUITMENTS

The following faculty recruitments are underway:
- Assistant Professor of Clinical Anesthesiology
- Assistant/Associate/Full Professor of Equine Surgical Emergency and Critical Care
- Assistant Professor of Epidemiology in Climate Adaptation Health
- Assistant/Associate Professor of Marine Aquaculture Science
- Assistant Professor of Clinical Equine Internal Medicine
- Assistant Professor of Clinical Livestock Medicine
- Assistant Professor of Small Animal Internal Medicine (GI focus)
- Health Sciences Assist Clinical Professor of Small Animal Internal Med
- Assistant/Associate/Full Professor of Dermatology
- Assistant/Associate/Full Professor of Clinical Avian Diagnostics
- Specialist in Cooperative Extension in Antimicrobial Stewardship
- Assistant/Associate/Full Professor of Equine Theriogenology
- Assistant/Associate/Full Professor of Anatomic Pathology
- Health Sciences Assistant/Associate Clinical Professor of Anatomic Pathology
- Director, Center for Comparative Medicine; Stowell Chair in Pathology and Laboratory Medicine
- Assistant Specialist in the Cooperative Extension in Sheep and Goat Herd Health and Production

INTERNATIONAL IMPACTS: FISH-SKIN DRESSINGS USED ON ACID-ATTACK PONY IN PIONEERING SURGERY

A pony which was left with extensive facial burns in a suspected acid attack has undergone pioneering surgery at a Yorkshire equine hospital. The eight-month-old cob filly, named Cinders, was found dumped in Clowne, Derbyshire. Now, in a world first on a horse, vets have applied dressings made from the skin of tilapia fish to the wounds.

Tilapia dressings were first used on human patients last year by doctors in Brazil looking for cost-effective methods of treating burns. Veterinary emergency and critical care specialist Jamie Peyton, a faculty member at the school, has adapted the process for animals. The UK case veterinarian contacted Peyton about the technique and she flew to the UK to take part in the pioneering surgery.

Peyton and her veterinary nurse Krisie Vine, with the support of the school's veterinary hospital, took the tilapia dressings with them. Once Cinders was anesthetized, her previous dressings were removed and cold laser therapy and focused pulsed electromagnetic field therapy was applied to decrease pain and inflammation, kill bacteria and improve blood flow. The entire surgery took approximately three hours. Cinders recovered from anesthesia within 30 minutes and was back in her stable eating within an hour.

CADMS BECOMES AN FAO REFERENCE CENTER FOR VETERINARY EPIDEMIOLOGY

In May the Center for Animal Disease Modeling and Surveillance (CADMS) led by Dr. Beatriz Martínez López was formally recognized by the Food and Agriculture Organization (FAO) of the United Nations as an FAO Reference Center for Veterinary Epidemiology. As a designated FAO Reference Center, CADMS will continue to provide

independent technical/scientific advice on notable issues of relevance to FAO and join in the large range of scientific, technical and economic expertise upon which FAO draws for collaboration. CADMS will inform FAO of changes in epidemiologic situations of animal diseases and to any risks that are identified to be associated with animal diseases using state-of-the-art risk mapping technologies such as those developed within the Disease BioPortal (http://bioportal.ucdavis.edu). Center team members will support risk assessment research and training activities and provide advice on appropriate disease surveillance methods, as well as contribute to support capacity building programs in FAO member developing countries.

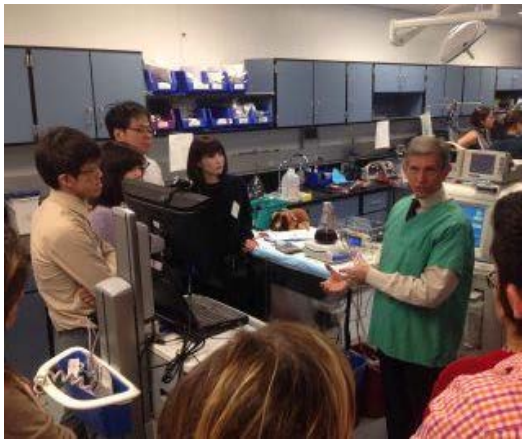
"Recognition of CADMS and our team as an FAO Reference Center is both gratifying and significant to our mission," said Director Martínez López. "As an FAO Center, our team will make even greater impacts on global health, expand our animal health training and capacity building activities and provide collaborators with essential information to inform disease control strategies."

UC DAVIS HOSTS SUCCESSFUL RENAL WEEK

The school, in partnership with the International Renal Interest Society, hosted IRIS Renal Week this past March. This six-day seminar offered up to 40 hours of continuing education credits to veterinary professionals. The event was held in two parts: two days of Hemodialysis Boot Camp and four days of the Renal Week sessions.

In only its second biennial role as the official host of IRIS Renal Week and the Hemodialysis Boot Camp, the school was the site of excitement and enthusiastic learning about what is new, visionary, and upcoming in veterinary and comparative nephrology and extracorporeal therapies. These two international programs represent the largest and most advanced symposia devoted exclusively to veterinary nephrology.

The Hemodialysis Boot Camp took place over the first two days of the week. The introductory "crash course" on renal medicine offered nine lectures and six laboratory sessions. The Renal Week sessions concluded the week with four days of lectures and laboratories, beginning with a retrospective look back at the history of veterinary nephrology and extracorporeal therapies. The 30 lectures offered prospective insights into glomerular disease and systemic hypertension, and many other topics. The keynote speakers linked human and veterinary nephrology, forecasting a One Health approach to treating kidney disease. Innovative demonstrations of extracorporeal therapies with introduction of new extracorporeal direction in hemoperfusion and therapeutic apheresis made up the 11 laboratories offered.



"By all accounts, the 2018 IRIS Renal Week and Hemodialysis Boot Camp were the best in its 14-year history," said Dr. Larry Cowgill, director of the UC Veterinary Medical Center – San Diego and a pioneer in veterinary renal medicine. "The overarching theme for Renal Week was a glimpse at the roots and prospective look forward to the future of veterinary nephrology."

The school offers hemodialysis, therapeutic plasma exchange, and other treatments for life-threatening acute kidney failure and management of long-term renal conditions at both its Davis and San Diego clinics.

EVENING OF GRATITUDE 2018

The school held its annual Evening of Gratitude dinner in April, a special occasion that brings together scholarship donors and student recipients to celebrate the power of philanthropy. Students received $6.7 million in total support from scholarships and grants this year, thanks to the generosity of individual, association and corporate donors who make these new and continuing awards possible.

"We are deeply grateful for these valued partnerships that help us achieve the heart of our mission—educating the next generation of veterinarians, research scientists and veterinary specialists," said Dean Michael Lairmore in his opening remarks.

Christian Munevar, Class of 2018, served as the student speaker for the evening. His goal is to pursue a board certification specialty then return to Southern California to practice. "I'd never be here without the support of these amazing donors," Munevar said. "This means everything to me." (*Christian Munevar with CVMA Executive Director Valerie Fenstermaker pictured.)*

A few examples of new investments in students include:

- The Charles and Emily Miller Award, created by a father-daughter team of veterinarians at the Scotts Valley Veterinary Clinic.
- Mills Equine Sports Medicine Award, created by Dr. Jillian Mills for a student in good standing who has demonstrated interest in equine sports medicine.
- Barry S. Kipperman Award in Veterinary Ethics, created by a former resident and current guest lecturer in Ethics. Dr. Kipperman received a scholarship in vet school and appreciated the value in both helping him make ends meet, and in building his self-esteem.

UC DAVIS PARTICIPATES IN SIMULATION EXERCISE FOR FOOT-AND-MOUTH DISEASE (FMD)

The 2001 FMD outbreak in the UK led to the culling of more than six million sheep, cattle and pigs, and the loss of billions in British pounds. To prevent a similar situation from happening in this country, the U.S. Department of Agriculture (USDA) in conjunction with several state departments of agriculture and the National Animal Health Laboratory Network (NAHLN) led a 3-day FMD simulation exercise in May to advance the nation's capability to respond to a FMD emergency. As a critical partner with the California Department of Food and Agriculture in protecting animal and human health in the state, the California Animal Health and Food Safety Laboratory System (CAHFS) played a crucial role in this exercise.

The simulation exercise objectives were to:

- Demonstrate effective communication among the federal, state, local, and industry entities, and among federal and state emergency operations centers;
- Define the critical information requirements and prioritization strategies to support requests for and manage scarce or critical resources;
- Refine policies and procedures for engaging/requesting support during an FMD response;
- Demonstrate procedures for the integration of state and federal information management systems;
- Validate FMD response plans; and
- Identify gaps in available resources and policies that would be needed to effectively respond to an FMD outbreak.

The complete training comprised a 3-day functional exercise for six states (California, Colorado, Montana, Minnesota, South Dakota and Wisconsin) and a table-top exercise of shorter duration for six additional states (Iowa, Kentucky, Michigan, Nebraska, Oklahoma, and Texas). While FMD doesn't pose a human health threat, it is highly infectious and can be spread through contact with contaminated farming equipment, vehicles, clothing, feed and by domestic and wild predators. Its containment demands considerable efforts in vaccination, strict monitoring, trade restrictions, quarantines and the culling of animals.

If and when suspected cases of various animal diseases are identified, samples can be sent to any of the four CAHFS facilities in the state (Davis, Turlock, Tulare, and San Bernardino). Early detection would play a major part in helping to minimize the impacts of an outbreak to the California economy and all impacted livestock industries. The state is now the 5th largest agricultural economy in the world, with a dairy industry valued at approximately seven billion dollars annually. A delay in the detection of an FMD outbreak could cost up to $565 million per hour.

VETERINARY INSTITUTE FOR REGENERATIVE CURES (VIRC)

VIRC is an interdisciplinary unit involving more than 35 faculty who are committing significant time and effort to study regenerative therapies for veterinary and human medicine. Six disease teams have been established that include basic research and clinical faculty to focus on "bench to bedside" translation of stem cell therapies. The teams include strong collaborations with faculty in the School of Medicine, College of Engineering (Biomedical Engineering) and College of Agricultural and Environmental Sciences (Animal Sciences) and focus on:

Brain Tumors & Spinal Cord Injury
Inflammation & Infectious Disease
Bone, Cartilage and Muscle
Dentistry & Oral Surgery Reconstruction
Kidney and Heart Disease
Eyes

A number of clinical trials are currently in progress including:

Cats - Fat-derived Mesenchymal Stem-Cell Therapy for Cats with Chronic Gingivostomatitis
Dogs - Inflammatory Brain Disease - Necrotizing Meningoencephalomyelitis (NME)
Horses: Tendonitis & Ligament Injuries: Optimizing dosage of a Stem Cell Therapy

For a full listing of VIRC clinical trials visit: www.vetmed.ucdavis.edu/virc/clin_trials/index.cfm

NEW REPORT SHOWS HOW UNPREPARED WE ARE TO FIGHT TICK- AND MOSQUITO-BORNE DISEASES

The Centers for Disease Control and Prevention (CDC) reported recently that cases of vector-borne diseases tripled from 2004 to 2016. And over that time period, as global travel has increased, eight new diseases have emerged here, including Zika and chikungunya. Although some of the spike is probably due to increased disease surveillance, the threat is becoming increasingly urgent—even as funding to fight vector-borne diseases remains dangerously inadequate. According to the report, four-fifths of control agencies lack critical prevention and control capacities.

Chris Barker, an epidemiologist in the school, who directs the Pacific Southwest Regional Center of Excellence in Vector-Borne Diseases, indicates that funding ebbs and flows with outbreaks. When West Nile first hit the U.S. in 1999 there was an influx of support, but it dried up after a few years. When West Nile cases spiked again in 2012 a lot of the places that had the highest number of cases had let their programs erode because there hadn't been an outbreak for a while. West Nile hospitalizations have cost nearly $800 million since 1999. The budget for the CDC's vector-borne disease division is less than $50 million.

In 2016, Congress authorized the CDC to use an additional $350 million to fight the mosquito-borne Zika virus—the agency used some of that money the following year to launch five new research centers to study vector-borne diseases. Congress also established the Tick-Borne Disease Working Group in 2017. Yet in 2018, the budget for CDC's Division of Vector-Borne Diseases is less than $50 million, with $10.6 million of that dedicated to Lyme disease. Ultimately, progress will depend on the support of legislators and Congressional appropriations for consistent program support in between outbreaks.

FUTURE VETERINARY MEDICAL CENTER

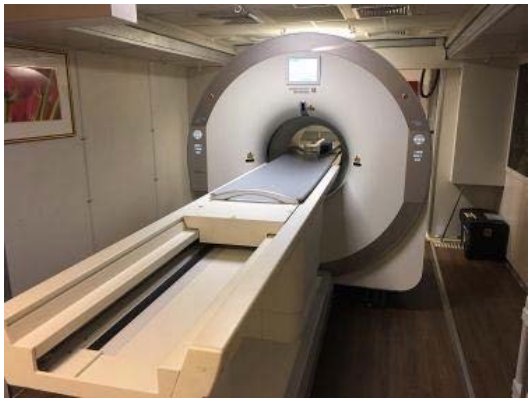
The new UC Davis Veterinary Medical Center will be unlike any other veterinary facility. Built to promote clinical innovation, transformational research discovery and compassionate healing; each animal and client will receive attentive and personalized care in the center of a world-leading biomedical research hub. The modern Veterinary Medical Center, home to 34 clinical specialties, provides a rich learning environment for the nation's largest veterinary residency program. From behavior to zoo medicine, all of these specialties, supported by an extensive complement of clinical laboratories, provide the comprehensive and innovative patient care advantage of the Veterinary Medical Center.

The planning effort for the new UC Davis Veterinary Medical Center has identified ten project groupings to be constructed in sequence:

- All Species Imaging Center
- Community Practice Consolidation
- Equine Performance Center
- Equine Surgery and Critical Care Center
- Equine Isolation
- Large Animal Support Facility
- Livestock and Field Service Center
- Small Animal Clinic Examination Rooms (Remodel)
- Small Animal Hospital East Wing A Center of Innovation, Discovery and Healing
- Small Animal Hospital West Wing

Each of these structures will advance the school's ability to handle the challenging and increasing caseload, allows for the adoption of the latest technology in veterinary medicine and provides the infrastructure and efficient services to facilitate translational research. Each stage of construction will not only eases overcrowding with an enlarged footprint, but will also enhance the integrated approach of our veterinary teams to deliver patient care, teach and develop new knowledge applying lab discoveries to the clinical setting for added patient benefit and student education.

UC DAVIS BECOMES ONLY VETERINARY HOSPITAL IN THE WORLD WITH A VOLUMETRIC PET SCANNER



In May, the UC Davis veterinary hospital started imaging patients on a new PET/CT scanner known as the Mini Explorer II. This advanced imaging system, the first of its kind in the world, is designed to provide veterinarians with both anatomic and physiologic information.

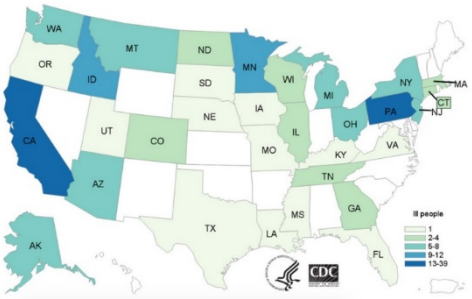
"The applications of this machine are far above and beyond typical PET scans," said Dr. Derek Cissell of the Diagnostic Imaging Service. "We are able to get better spatial resolution and sensitivity that aid in providing the best care possible for our veterinary patients."

Typical scans can take up to 30-45 minutes to get the information needed to make a proper diagnosis, though radiologists believe that the increased sensitivity of the new scanner may allow them to reduce this time to as little as 5-10 minutes for some types of studies. This is possible because the width of its PET detector is much wider than a conventional scanner, allowing a volumetric acquisition. As an example, the head, neck, and abdomen of a 30-pound dog can be scanned in two acquisitions instead of the multitude of readings that would be required with a conventional scanner.

These faster scans reduce patient anesthesia time, yet still provide outstanding image quality to evaluate disease processes with greater sensitivity and precision. This may also lead to a reduction of the injectable dose of radiopharmaceutical needed to acquire images. Imaging specialists at the school will be exploring the lowest possible dosage needed to achieve the best image quality.

One of the most advantageous uses of PET in human medicine is to stage cancer. Cancer cells behave differently than normal cells in terms of glucose metabolism. The radiopharmaceutical agent used in PET scanning behaves metabolically just like glucose, so it is taken up by cells. When one of those cells is cancerous, the agent becomes trapped in the cell, and it cannot be metabolized. A metastatic lesion in a lymph node might not be noticeable on a CT, but the agent trapped in the cell stands out on a PET scan. In addition to cancer applications, the PET scanner will also be used for orthopedic, neurology, and cardiology diagnosis, among others.

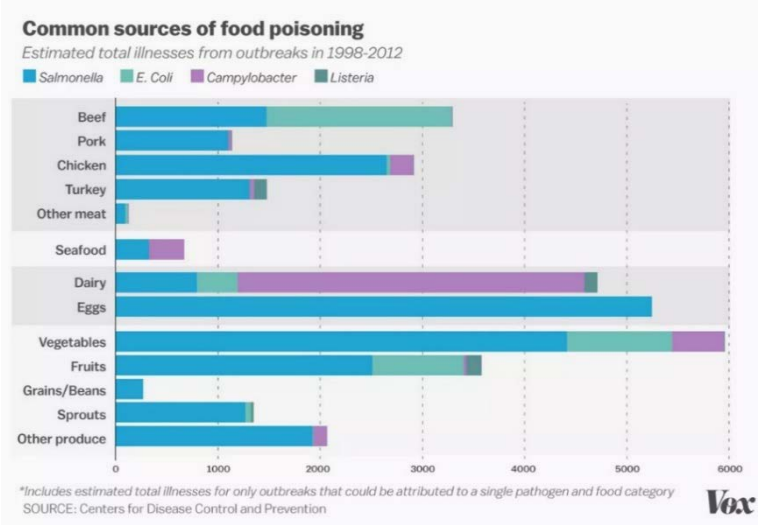
SALAD -- A MAJOR SOURCE OF FOOD POISONING IN THE US



Since March, the countrywide romaine E. coli outbreak grew into the largest multi-state E. coli scare since 2006. As of May 15th, 172 people in 32 states have fallen ill, including one person who died in California. Of these cases, 75 have been hospitalized, including 20 who developed kidney failure.

Although officials at the CDC have said that the greens from the Yuma growing region — the source of this outbreak — are no longer being sold and past their shelf life of 21 days, consumers should probably be a little wary of lettuce all the time. As sales of precut and bagged greens have boomed, one thing is becoming increasingly clear: They're now one of the most common sources of food poisoning in the US.

According to a 2015 estimate from the CDC, nearly 50 percent of all food-borne illnesses (48 million/year) are caused by produce. Meanwhile, dairy and eggs cause 20 percent, meat and poultry are the culprits in only 22 percent of cases, and fish and shellfish just 6 percent.



Michele Jay-Russell, a food safety researcher at the school who has investigated salad-related poisoning outbreaks in the past, said the raw vegetables that are the most common culprits are basically all salad greens, but especially the chopped and bagged kind.

People are simply eating more fresh produce these days than they did just a few years ago, and we tend to eat most produce raw. That means "there's no kill step for the consumer to cook off the bacteria that might be lurking in our food," said Jay-Russell.

While there are extensive procedures to prevent this kind of food poisoning from happening, and regulations on farms have gotten stricter, some contamination can still slip through. Some of the processes farms have in place to clean salads actually trap bacteria in the plants, making them impossible to wash away, and contamination can happen all along the spectrum of growing plants. There are also types of bacteria that you simply can't wash off, or the contamination happens in places you typically don't splash with water, like inside the core of a lettuce head. Americans' love of convenience for mass-produced chopped, bagged lettuce amplifies the risk of poisoning.

UC DAVIS STUDY EXAMINING WILDFIRE EFFECT ON CHICKEN EGGS

Researchers are now asking if eggs from backyard chickens could be contaminated after the devastating wildfires in Northern California last year. At this point, it's unknown what the effects of potentially contaminated eggs can have on human consumption. Maurice Pitesky, UC Cooperative Extension poultry specialist at the school, and lead researcher of the study, is concerned about the vaporization of plastic and all those chemicals in people's garages that can become ash and then end up in the environment. "Chickens spend a lot of time pecking off the ground," Pitesky says.

So far, Pitesky and his team have collected eggs from about 200 locations across the state, where wildfires hit last year. A toxicologist will then sample the eggs by testing the yolk for chemicals, particularly heavy metals and fire retardants. Pitesky is also trying to study how long these chemicals can live inside the eggs, and whether the amount dissipates over time.

To find out if harmful substances on the ground that are eaten by hens get passed along in the eggs they lay, Pitesky, is providing free egg testing to understand the connection between the environment that backyard poultry are raised in and the eggs they are producing.

Pitesky's colleague veterinary toxicologist Birgit Puschner is testing eggs for different types of contaminants, depending on the county the eggs are from. Eggs from counties recently affected by wildfires will be tested for chemicals, building materials and heavy metals that may have been carried in the smoke and ash. Pitesky and Puschner are also looking for lead and PCBs in eggs from certain regions of the state.

The individual egg test results will be shared with each poultry owner. At the end of the study, all of the results will be summarized and made available to the general public.

NEUROSURGEONS SUCCESSFULLY REMOVE BRAIN TUMOR, EXTENDING DOG'S LIFE

Dazzy, a 4-year-old male French bulldog, began having seizures and acting aggressive toward strangers – a behavior he had never previously displayed. His owners took him to see their primary veterinarian who ultimately referred them to a neurologist near their home in Southern California. An MRI performed by the neurologist revealed a left intra-axial cerebral mass, most consistent with a glioma (brain tumor).

By chance, that same day, Dr. Pete Dickinson of the UC Davis Neurology/Neurosurgery Service contacted that neurologist to share news about a clinical trial for dogs with brain tumors. Dazzy's tumor—a grade III oligodendroglioma—was extremely aggressive and carried a poor prognosis. After realizing how severe the tumor was, they decided to enroll him in the trial.

The school's Veterinary Center for Clinical Trials is continually exploring alternative methods to advance veterinary care for patients. Dazzy's trial involves investigating whether nanoparticles can be used to better visualize tumors during surgery, and potentially to see if they will be a useful method to deliver drugs into brain tumors for treatment.

A team of neurology and oncology specialists at the veterinary hospital felt that surgery plus radiation would give Dazzy the best chance for a prolonged life, and to try to reverse the aggressive behavior and improve his quality of life in the short term. Dr. Dickinson, along with fellow faculty member Dr. Beverly Sturges and neurology resident Dr. Devin Ancona, planned for Dazzy's surgery to remove the tumor. A craniotomy was performed, and the neurosurgeons cut into Dazzy's brain to remove the large tumor, which equaled about 35 percent of the size of his cranium. A radiologist joined them for the surgery and utilized ultrasound to guide the surgeons to exactly where the tumor was located.

Dazzy did well during the surgery, and was hospitalized for five nights, spending the first night post-surgery in the Intensive Care Unit. MRI scans showed no visible tumor remaining following surgery, and Dazzy quickly recovered and was walking, eating and drinking well shortly after. Importantly, the aggressive behavior resulting from the brain tumor resolved, giving Dazzy's owners back the pet they had always known.

Two weeks after surgery, Dazzy's care was transferred to the Radiation Oncology Service where he was given 20 rounds of radiation therapy over the course of four weeks. Dazzy came through the treatments with no adverse effects. While Dazzy's immediate health is almost back to normal, the tumor is expected to return eventually. The surgery and radiation treatments have given Dazzy 1-2 more years of normal life with his family. The information gained from the delivery of nanoparticles to Dazzy's tumor will be used to develop new treatments for brain tumors in both humans and companion animals.

VIRULENT NEWCASTLE DISEASE IN CALIFORNIA

Following the initial detection of virulent Newcastle disease (vND) through a routine submission to CAHFS, which was confirmed by the U.S. Department of Agriculture (USDA) on May 16, 2018, CAHFS continued working with the California Department of Food and Agriculture (CDFA), USDA and poultry owners to contain and eradicate this foreign animal disease. As of May 25, 2018, cases have been confirmed on six premises in Los Angeles and San Bernardino counties.

Virulent Newcastle disease is a very contagious and often fatal disease of many avian species. Infected birds might show a variety of clinical signs including sudden death, respiratory signs such as sneezing and nasal discharge, depression, paralysis and diarrhea. Biosecurity remains the key step to prevent spread of this disease. This includes washing hands and scrubbing boots before and after entering a poultry area, cleaning and disinfecting tires and equipment before moving them on or off the property, and isolating any birds returning from shows for 30 days before placing them with the rest of the flock. In addition to practicing good biosecurity, all bird owners should report sick birds or unusual bird deaths through California's Sick Bird Hotline, 866-922-BIRD (2473).

CAHFS offers diagnostic services for all avian species. Oropharyngeal swabs and/or sick/dead birds are the preferred samples for diagnosis of Newcastle disease. The CAHFS San Bernardino lab is the closest to the current outbreak location, but the Davis, Turlock and Tulare labs are all receiving samples and carcasses for testing.

ONE HEALTH CURRICULUM PROVIDES POWERFUL MODEL

Davis Warriors was the name of the team. They were one of four collaborative student learning groups at the Western Institute of Food Safety and Security (WIFSS) student conference on One Health for food safety and security. Seven teammates worked together on a learning activity called, "Good Guys vs. Bad Bugs," in which they explored the importance of sanitary practices on a dairy farm to protect animals from the disease-causing bacteria *E. coli*. In the activity, half of the team represented the dairy manager and staff, referred to as the "good guys," and the other half of the team represented the *E.coli*, also known as the "bad bugs."

The bad bugs on the team were to identify ways *E. coli* can enter a dairy farm and cause mastitis in the dairy cattle. The good guys were to identify biosecurity measures that should be implemented on the dairy farm at critical points to protect the dairy cows from the harmful bacteria. A lively exchange between the bad bugs and the good guys ensued during the 15 minute presentation.

The Good Guys vs. Bad Bugs learning exercise was part of the 3-week NAU-UC Davis Education Conference on One Health for Food Safety and Security**,** held at UC Davis. Twenty-nine undergraduate students from Nanjing Agricultural University (NAU) attended the conference sponsored by NAU, and hosted by WIFSS.

VETERINARY MEDICAL TEACHING AND RESEARCH CENTER (VMTRC) - *High School Career Days and Internship*

For students contemplating college, VMTRC post-graduate residents participate in high school career days. An annual high school internship program with the center's Milk Quality Lab and Clinical Program provides students the opportunity to work in the laboratory, which processes more than 50,000 samples each year, and learn basic skills. For students

that are specifically interested in becoming a veterinarian, they have the opportunity to observe clinical veterinary services provided on-farm to local dairy herds with the Dairy Production Medicine Clinicians. The internship has been very successful with several of the students going on to veterinary school and becoming practicing veterinarians.

AN EVENING WITH VET MED

The veterinary hospital recently launched a public educational series of lectures on animal health topics. The series—entitled "An Evening with Vet Med"—will feature on-campus seminars once a month that are free and open to the public. The lecture series is geared toward both large and small animal owners interested in learning the latest in caring for their four-legged family members. The first three lectures in the series have been announced:

"Farrier Services: Hoof Care Myths and Truths"
Tuesday, June 26, 2018, 7-8 p.m.
Presented by UC Davis farrier Shane Westman

"Basic First Aid and Preventative Care for Horses"
Tuesday, July 24, 2018, 7-8 p.m.

"Pet Dental Health"
Tuesday, August 21, 2018, 7-8 p.m.

Future topics in the series may include:

- basic dog and cat first aid
- dog breeding practices
- biosecurity at farms and horse events
- foal care
- animal behavior
- eye health
- lameness in dogs
- colic in horses
- vaccinations and parasite prevention

All presentations will take place in Valley Hall on the campus of the UC Davis School of Veterinary Medicine. The events are free, but participants must register. For more information, see the veterinary school's website: www.vetmed.ucdavis.edu/news/uc-davis-veterinary-hospital-launches-free-public-educational-series.

UPCOMING CONTINUING EDUCATION

- 11th Annual Back to School RVT/Veterinary Technician CE Seminar - July 21-22, UC Davis
- Fall Festival - October 5-7 (CE event on Oct. 7), UC Davis
- One Health Symposium - November 3, UC Davis

For a full listing of CE programs visit: www2.vetmed.ucdavis.edu/ce