



## CDC Develops Rapid Rabies Test

BY: SAMANTHA BARTLETT, DVM

In a recent press release, the CDC announced they have developed a new rapid test for diagnosis of rabies virus in animals. This new test is a real-time polymerase chain reaction (RT-PCR) that can yield results in just a few hours.

The current gold standard for rabies testing of animals is a direct fluorescent antibody test (FAT). This test requires specialized laboratory equipment with trained personnel. In addition, samples must be fresh and refrigerated. This can pose a problem in areas of the world that have limited resources. IT also drives up the cost of testing.

The new RT-PCR test developed by the CDC and given the moniker LN-34, can be run on samples of any age and storage condition. IN the preliminary testing, accurate results were obtained on tissue samples so old they had begun to liquefy. This test can be run on the same platforms as current testing for Influenza, HIV and Tuberculosis. This means the test requires less specialized equipment and staff and can be run more cost-effectively in labs all over the world.

The test was used on nearly 3000 samples and compared with results of the gold standard FAT. The LN34 confirmed all FAT-positive samples. However, it also defined 80 samples that were inconclusive or untestable by FAT. LN34 found one false negative and 11 false positive results that had been previously determined by FAT. These results suggest that the LN34 is more accurate and more flexible than FAT.

The implications of this test are greater for Rabies hotspots such as Africa and Asia where resources are

limited and the cost of post exposure prophylaxis (PEP) puts it out of reach for many victims. The special equipment required for FAT is often several days travel away from the location of the bite victim. Keeping a fresh sample properly refrigerated during transport in these areas is difficult at best. If rabies is confirmed or inconclusive, the cost of vaccination can cost several month's salary. With LN34, many people can be relieved from the cost and pain of unnecessary PEP.

According to the CDC's most recent surveillance report (2015), rabies has been identified in all 50 states and Puerto Rico. The largest percentage of identified cases have been in wild animals with bats being the biggest culprits. In the United States, a bitten person is often given PEP at a cost of \$3000 or more. LN34, with its greater accuracy, can reduce inconclusive and false positive results saving many people from having unnecessary vaccines. Current estimates for rabies testing and prevention in the United States is \$245-510 million per year. The number of people receive PEP in the US per year is about 45,000 people.

Currently the CDC is working with the Association of Public Health Laboratories to develop protocols that will help clinicians decide which test or combination of tests are the best to run in their particular scenarios. The World Health Organization is considering LN34 as the standard test to replace the FAT.

The LN34 study was published in PLOS One in May of 2018.

# The Role of Canines in the Mutation and Spread of Influenza

BY: SAMANTHA BARTLETT, DVM

In a paper published last month, researchers found that the influenza virus is more prevalent and more varied amongst canines in China than previously thought. Canine influenza as we traditionally know it originated from an avian strain of influenza and adapted to infect mammals, specifically canines. To date, there have been no reported cases of canine influenza making the leap to a human. However, in a recently completed study of 800 dogs in south China that presented for respiratory symptoms, 116 were diagnosed with influenza. Of these diagnoses, 16 different genomes of influenza were mapped, many originating from a form of swine influenza similar to the form that caused the pandemic outbreak in 2009. The paper is entitled, “Emergence and Evolution of Novel Reassortant Influenza A Viruses in Canines in Southern China“, and was published in the June 5, 2018 edition of mBio.

Traditionally, swine flu originates from an avian strain and then adapts to infect swine by mixing with DNA of influenza strains normally carried in swine. Making the leap to dogs, the influenza virus yet again mixes with virus DNA in the dog, forming a novel strain. The potential s for alarm are obvious. As the virus jumps from species to species, it becomes more adapted to mammals and thus more easily spread amongst individuals. The other potential cause for alarm is the number and proximity of dogs in their relationships with humans making the probability of a virus adapting and spreading that much higher.

Many experts have weighed in on these findings and most seem to think that at this point there is no cause for panic. However, they all agree that closer monitoring of virus types and their spread amongst species is warranted. If need be, measures to prevent the spread of influenza virus between individual dogs should be considered and instituted if necessary. Many suggest that the same vaccines used in swine could be used in dogs.

To date, there are only two known active strains of canine influenza in the United States, H3N8 and H3N2. H3N8 was first described in dogs in the early 2000s and jumped from horses to dogs, mainly at racing tracks, then spread through shelters and other areas where high populations of dogs in close proximity were found. H3N2 is more recent and originated from birds and spread from South Korea

and China to dogs in Chicago in 2015. The virus was later diagnosed in a shelter group of cats in Indiana. Since 2015, the H3N2 influenza virus has been diagnosed in dogs across the United States. Parts of the northeast from New York City to Philadelphia with some involvement into northern Virginia are the current areas of CIV activity. California and Nevada have been having active disease that seems to be subsiding. The outbreak in Canada has largely seemed to have been contained. Since the symptoms of influenza can resemble other causative agents of canine respiratory disease, it is possible that any number of cases have gone unreported due to the timeframe and cost of testing for influenza. For up-to-date information on outbreak locations, you can reference the Cornell influenza surveillance network at <https://ahdc.vet.cornell.edu/news/civchicago.cfm>.

The current consensus on the CIV vaccine is to continue to treat it as a lifestyle vaccine. Dogs that are at increased risk of exposure include those dogs that travel, board or go to day care, or participate in athletic or show events. The main source of movement of CIV from location to locations seems to be through animal shelters and rescue programs. More information on the prevention, treatment and handling of CIV can be found on the CDC and AVMA websites. The Cornell website also includes information on the appropriate samples and timing for testing for the presence of CIV.



# More Veterinary Schools on the Horizon

BY: SAMANTHA BARTLETT, DVM

Currently there are 30 accredited veterinary schools in the United States. Two of these schools, Midwestern in Arizona and Lincoln Memorial in Tennessee, opened as recently as 2014. Midwestern is a private school operating out of Glendale, AZ. Lincoln Memorial, located in Harrogate, TN, is also a private institution. Lincoln operates under a more European model for veterinary schools with a 6-year program that provides students with both a bachelor of arts and a doctor of veterinary medicine.

The University of Arizona is working on obtaining a letter of reasonable assurance from the AVMA's Council on Education (COE) to proceed with opening their doors to students and seek accreditation. The letter of reasonable assurance is awarded by the COE prior to a school achieving full accreditation status and allows students to access loans under Title VII of the US Public Health Act. UA has been seeking the go ahead from the COE since 2013 but was not approved on their first round. If the UA program meets standards this time, they hope to open their doors in 2020.

The University of Arizona model aims to cut overall costs of attendance in a few different ways. First, they propose to shorten the traditional school breaks so that students spend less overall time seeking their degree and graduate earlier than the traditional 4-year program. Second, UA will not be building a teaching hospital and will instead use local practices for clinical training. By not building a teaching hospital, UA can pass some of the savings to students by lowering tuition.

In another recent announcement, Texas Tech has received approval from the Amarillo City Council to receive funding for the development of their planned veterinary school. Currently Texas A&M is the only veterinary campus in Texas. If Texas Tech can get funding and necessary approval as planned, they hope to begin construction by October 2019 and admit their first students in the fall of 2021. Also, in the early proposal stages, Long Island University is pushing for the development of a veterinary school on their campus in New York.

In addition to the creation of new veterinary schools, many existing entities have increased class sizes in an

effort to bring in more money to make up for decreased government funding. This expansion of class size and number, has a few veterinarians worried about the future of the industry. Concerns have been voiced about the potential glutting of the market with new grads for which there may be no job opportunities. Many of these fears arose out of the recession in 2009 but seem to be unfounded at present.

The AVMA published its 2017 economic reports on the state of the veterinary profession including markets for veterinary education, veterinary services and veterinary employment. In this report, the AVMA analyzes the national economic health and trends and extrapolates forecasts for the veterinary profession. The profession is greatly affected by the economy and the consumer's disposable income.

In 2016 there were almost 108,000 veterinarians actively engaged in the profession with 17,000 veterinary students. Veterinary unemployment was 1.7% compared to the national average of 4.6%. The veterinary profession has also been experiencing a negative underemployment and for the first time, the number of veterinarians wishing to decrease their hours for decreased compensation was larger than the number wishing to increase their hours for increased compensation. Based on these numbers, the AVMA estimates 3,391 new veterinarians would be needed to fill the gaps in the work force created by underemployment. To support this, 2016 saw a record number of new graduates securing full-time employment before graduation at 64.4%. There was also a significant decrease in the number of new grads in 2016 that did not find employment or receive an invitation for further education.

In summary, the current economy seems to be able to support the influx of new graduates from the added classroom seats. In fact, the current market for veterinary employment could even be called competitive with increased salaries and more employment opportunities per applicant. The future is difficult to predict, but the next recession may well change these numbers and many new future grads may have difficulty finding work. The 2017 economic reports can be downloaded from the AVMA website.



## Study on the Effect of Tramadol for Osteoarthritis Pain

BY: SAMANTHA BARTLETT, DVM

Until recently, Tramadol was a go to adjunct medication for osteoarthritis and orthopedic pain in dogs. Many osteoarthritis patients have been on a combination of NSAIDs and tramadol for years to help control their chronic pain. However, recent studies have shown that tramadol may not have the effectiveness that we originally assumed.

In 2011, research out of Kansas State University showed that the active metabolites of Tramadol were only found at peak plasma concentrations for 1-3 hours. Additionally, the KSU research found that the drug's ability to reach peak plasma concentrations diminished with repeated dosing, suggesting that Tramadol is not suitable for chronic use in dogs. This research was published in the AJVR and was entitled, "Pharmacokinetics and antinociceptive effects of oral tramadol hydrochloride administration in Greyhounds".

In February 2018, JAVMA published research by a team at the University of Georgia with funding from Morris Animal Foundation entitled, "Lack of effectiveness of tramadol hydrochloride for the treatment of pain and joint dysfunction in dogs with chronic osteoarthritis". This research found that dogs taking tramadol showed no improvement in pain scores compared to a placebo. Dogs in the study all had chronic osteoarthritis of the elbow or stifle. In a randomized, double-blinded crossover study, the dogs were given either a placebo, Rimadyl or tramadol for 10 days. The dogs were assessed based on owner perception of pain and assessment of vertical ground reaction scores were assigned at the beginning and end of each treatment period.

No significant changes were noted in vertical ground reaction scores at the beginning and end of treatment with tramadol or a placebo. However, significant increases were noted at the end of the Rimadyl treatments. This has led the authors of the study to conclude that tramadol is not an effective drug for the chronic management of osteoarthritis in dogs.

Both of these studies, among others, mentioned the phenomenon of caregiver bias. Owners reported perceived reduction in pain with tramadol, but force plate analysis showed no improvement over a placebo when the pet was placed on tramadol.

What hasn't been shown by this research is the potential effects of using tramadol in combination with other pain medications. Further study may be warranted to rule out this possibility. However, at the current time, it would seem that the only benefits of giving tramadol for pain are very short term.

Perhaps even more importantly, knowledge of tramadol's lack of efficacy in dogs for long term pain management, may help veterinarians in dealing with potential drug-seeking behavior from owners. The DEA has classified tramadol as a Schedule IV drug, which means the potential for abuse exists although it is a lower potential than most other opiates. However, research has shown that opiate users do seek and become dependent on tramadol. The fact that tramadol is now a DEA scheduled drug makes it less attractive to keep and prescribe in clinic for the purposes of tracking and inventory. With all of the other responsibilities thrown on veterinarians' plates, this may be one less headache in the long run.

## KCVMA Award Winners from the 2018 K-State Vet Med Spring Honors Banquet



Ryan Dougherty (Garden Grove, CA) with Dr. Steven Joseph.  
Winner of the KCVMA Dr. Steve Joseph Compassionate Care Award



Shanna Marroquin (Wichita, KS) with Dr. David Biller  
Winner of the KCVMA Radiology Proficiency Award

## JULY CE

Speaker: Dr. Andy Fox

Location: Lidia's

Topics: Management of Canine Inappetence

101 W 22nd. St.

Date: Thursday, July 19th, 2018

Kansas City, MO 64108

Time: 6:30pm – Dinner & Registration  
7pm – Presentation

Fee: No fee to attend this event, but **RSVP is required by July 16th**. Current membership dues cover all CE.

CE: 1 Hour

Sponsor:



**PLEASE REGISTER AT [HTTPS://KCVMA.WILDAPRICOT.ORG/EVENT-2963625](https://kcvma.wildapricot.org/event-2963625)**

Dr. Andy Fox is a 2004 graduate of the University of Missouri College of Veterinary Medicine. He spent several years in small animal private practice in the Kansas City area, before moving to an industry position in St. Joseph Missouri. Dr. Fox joined Aratana Therapeutics in the fall of 2015 as the Veterinary Medical Director. Dr Fox has an sincere interest in providing education to veterinarians and their staff on new therapeutic advances.



Date: Saturday, August 25, 2018

Location: Community America Ballpark

Time: 6:15PM Gates Open – 7:05PM Game

1800 Village W Parkway  
Kansas City, KS

KCVMA has reserved the MEGA SUITE!! Private indoor/outdoor suite and \$5 T-bones bucks per person for food and beverages. Come watch the game, fireworks and meet Sizzle the mascot!! KCVMA will pay for 1 member and 1 guest. Space is limited to 100 people. Members may order up to 2 additional tickets for \$25 each. Tickets and T-Bones Bucks can be picked up on the day of the event at the box office. Contact Brian Ellis at [bellis@kcvma.com](mailto:bellis@kcvma.com) for more information.

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**SIGN ON BONUS** for a Veterinary Technician to join the team at Oxford Animal Hospital! The ideal candidate: Is confident and reliable, Has excellent communication skills, Has a strong veterinary skill set, Is a team player, Has a minimum of 2 years experience. Why work at Oxford Animal Hospital? We invest in our employees growth and happiness. We promote a positive work/life balance. We offer an incredible benefits package! If you are passionate about pets and providing exemplary veterinary care then we want you to join our team! Apply today! We look forward to hearing from you! [https://app.jobvite.com/j?cj=ow6o7fwR&s=KCVMA\\_Oxford\\_Vettech](https://app.jobvite.com/j?cj=ow6o7fwR&s=KCVMA_Oxford_Vettech)

Rockhill Pet Clinic is seeking to add a full and/or part time Associate DVM to our team. The right candidate will be committed to thorough and comprehensive patient care and have an interest in practicing advanced medicine. This individual will also be an exceptional communicator with the ability to bond clients to the practice. Some of the medical services we offer at Rockhill Pet Clinic are: Routine and Complex Soft Tissue Surgery, Routine and Complicated Dentistry, Urgent Care, Critical Care, Preventive Care, Digital Radiology, Ultrasound, Laboratory Services. If you have a drive for continued professional growth and a desire to use and expand on your education and experiences, please send us your resume!

Our Veterinary Team is looking for a full time or part time associate veterinarian who fits the mission and unique environment of our progressive, fast growing full-service hospital. Our team practices high quality medicine by providing preventative, diagnostic, surgical, and dental services supported by a dedicated staff that understands the importance of nurturing both the client and patient relationships. Our unique management system involves all staff members in decision making and allows them to influence and improve the quality of the workplace and the practice. We have a complete in house lab, CR, digital dental x-ray, use of close after hours emergency hospital, and we are "paper lite". Compensation/benefits package includes competitive pay, retirement plan, health insurance, paid AVMA, AVMA PLIT, annual CE allowance with time off. Our modern and inviting AAHA Hospital is located in southern Johnson County in Olathe, Kansas. If you would like to build a long term career in a progressive, fast growing hospital, and build a client base with us, then this position is for you. Please submit resume and cover letter to: [sarah.karina@blackbobpethospital.com](mailto:sarah.karina@blackbobpethospital.com)

Turner Animal Hospital has an opening for a part or full-time Vet Tech. We are a busy and growing 2 doctor practice in Southern Kansas City, KS near highways 70,635, and 69. Duties include but are not limited to: Assisting with surgeries, blood draws, client education, running diagnostic tests, giving vaccines, medical care of hospitalized patients, and answering phones. Requirements: A Highschool Diploma or GED, sense of humor, team player, 1 year experience working at a veterinary clinic as a vet tech or a degree from an accredited Veterinary Technology Program. To apply, please email Tara at [turneranimalhospital@gmail.com](mailto:turneranimalhospital@gmail.com).

The University of Missouri Department of Veterinary Medicine and Surgery invites applications for emergency veterinarians at the MU Veterinary Health Center at Kansas City. Qualifications for the position include a DVM or equivalent degree and a license to practice veterinary medicine in Missouri. Small animal practice experience is a requirement for the position. Emergency experience is desirable. The MU Veterinary Health Center at Kansas City is currently an emergency only facility for small animals. The practice provides local veterinarians with affordable and responsive after-hours critical care services for their patients. For a complete job listing, visit our website: <http://vhc.missouri.edu/veterinary-health-center-kansas-city> or visit us on facebook at [https://www.facebook.com/pg/MUVMTH/jobs/1790556061028731/?source=post\\_homepage\\_stream](https://www.facebook.com/pg/MUVMTH/jobs/1790556061028731/?source=post_homepage_stream)

Mission Road Animal Clinic is a full-service veterinary hospital serving the Prairie Village/Leawood and surrounding areas for over 40 years. We strive to stay current on new treatments and technologies, and open-minded to alternative treatment options as well. We offer in-house digital radiology, ultrasonography, cryo-surgery, cold laser therapy, dental and surgical options, wellness care, vaccinations and titers, as well as chiropractic care and massage therapy. We are currently seeking a part-time associate veterinarian to join our forward-thinking team. We offer flexible hours, benefits, CE, and more. Applicants should submit cover letter and resume to [dr gib@missionroadanimalclinic.com](mailto:dr gib@missionroadanimalclinic.com)

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Clinical Trial for Dogs with KCS! Eye Care for Animals Overland Park is enrolling cases. Dogs must be; healthy, have at least one eye affected, have STT  $\geq 5$  and  $\leq 15$  mm/min, have at least 2 clinical signs (hyperemia, blepharospasm, chemosis, discharge, corneal changes), be naïve to cyclosporine, tacrolimus, and parotid duct transposition, be on no ocular medications other than tear supplements. Visits at enrollment and weeks 1, 2, 4, and 6 for an ophthalmology exam, STT, and TBUT. Study medication and exam costs covered. Owners receive \$1000 for participation and referring vets receive \$1000 for each case enrolled. Call 913-381-3937 for more information.

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Quivira Crossing Veterinary Clinic located in Overland Park, KS is looking to add to our team! We are currently seeking a registered veterinary technician. Quivira Crossing Veterinary Clinic is a growing practice with many exciting changes on the horizon! We are focused on providing patients with exceptional healthcare while also providing an exceptional experience! If you would consider yourself to be energetic and self-motivated, we would love to speak with you and explore a future at Quivira Crossing! Please email resume to: [Npfvf6@mail.missouri.edu](mailto:Npfvf6@mail.missouri.edu)

Cedar Creek Pet Hospital is seeking a positive and energetic Registered Veterinary Technician to join our staff. The ideal candidate should maintain a positive and professional attitude, be flexible and most importantly deliver exceptional patient care and customer service to every client, every time. What else are we looking for? Strong organizational and communication skills, Experience performing dental cleanings, Knowledge of preventative care and wellness, Kindness and a desire to impact our community in a positive and meaningful way, Ability to work independently on tasks as well as with other hospital staff, Passion for learning, Fun!! We offer a competitive compensation package as well as pet benefits. Our practice focuses on high quality care rather than high volume in a clean, modern and spacious facility. Visit [www.CedarCreekPetHospital.com](http://www.CedarCreekPetHospital.com) for more information about our hospital. Email resume to [careers@cedarcreekpethospital.com](mailto:careers@cedarcreekpethospital.com)

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