OKLAHOMA STATE UNIVERSITY CENTER FOR VETERINARY HEALTH SCIENCES — OKLAHOMA ANIMAL DISEASE DIAGNOSTIC LABORATORY

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In this Issue

Faculty

Board of Advisors' Gavel Passed to New Chair

Above: Dr. Shawn Blood (right; Beef Strategic Technical Services, Zoetis), past-Chair of OADDL's Board of Advisors passes the gavel to Dr. Bret White (left; Food Animal Practice), current Chair.

The OADDL Board of Advisors met on March 29th to review OADDL's finances and operations, strategies for growth, and goals.

Additionally the board was addressed by the newly appointed Dean of the Center for Veterinary Health Sciences, Dr. Carlos Risco who provided updates on the college.

Above: Dr. Carlos Risco, Dean of the Center for Veterinary Health Sciences, communicates with OADDL Board members.

A 5-Year Survey of Intestinal Parasites in Dogs

A total of 4,448 fecal samples from client-owned (3,287) and shelter (1,161) dogs were examined from 2013-2017.

Intestinal parasites were much more frequently identified in the feces from shelter dogs (58.3%) when compared to client-owned dogs (18.7%). However, the 6 most commonly detected intestinal parasites were similar in both groups of dogs and included *Ancylostoma* spp., *Cystoisospora* spp., *Giardia* spp., *Toxocara canis, Trichuris vulpis*, and tapeworm (taeniid and

(See Intestinal Parasites in Dogs on page 2)

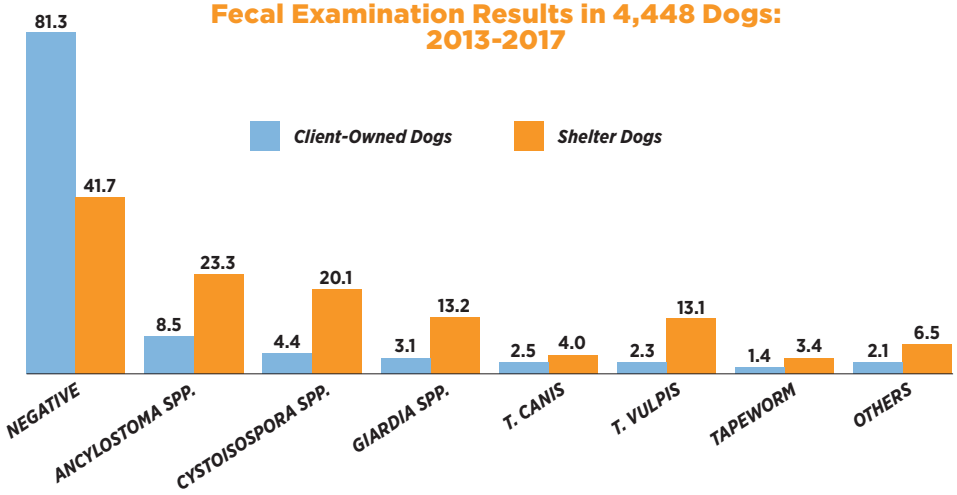
Intestinal Parasites in Dogs (continued from page 1)

Dipylidium caninum).

Less commonly identified intestinal parasite were *Alaria* spp., *Capillaria* spp., *Cryptosporidium* spp., *Dracunculus* spp., *Physaloptera* spp., *Nanophyetus salmincola, Toxascaris leonina, Strongyloides stercoralis,* small coccidian (*Neospora caninum* or *Hammondia* spp.), trichomonads, *Heterobilharzia americana, Uncinaria stenocephala,* and *Acanthocephalan*.

Ectoparasites (e.g. *Demodex* and *Sarcoptes*) were also identified by use of the fecal flotation examination.

– Dr. Y. Nagamori & M. Wohltjen



Tularemia Cases at OADDL: 2014-2018

Over the last four years, OADDL has diagnosed tularemia in several cats and rabbits. The first two cases of tularemia in 2018 occurred earlier this month (April).

Tularemia is endemic in Oklahoma (Fig 1). Confirmed cases of feline tularemia at OADDL have involved outdoor and indoor/outdoor cats ranging from 6 weeks to 10 years of age, with both sexes equally affected. Common clinical signs have included high fever and lethargy, followed by death. Infected cats often had the additional history of contact with a dead rabbit prior to onset of illness.

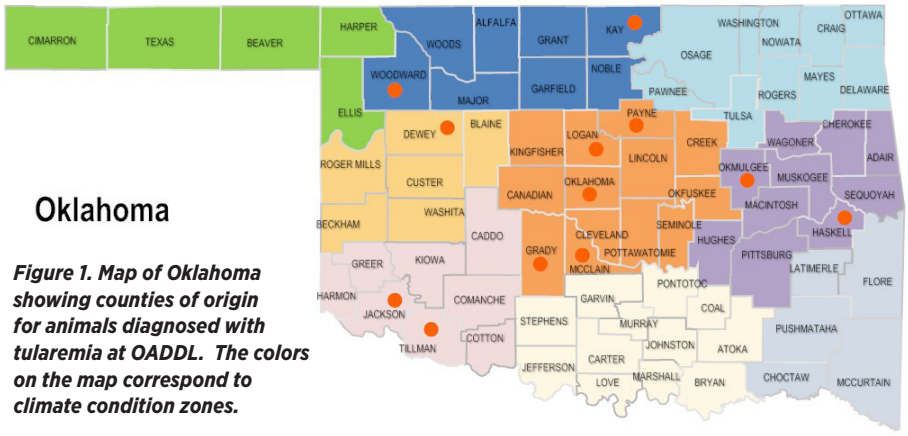


Figure 1. Map of Oklahoma showing counties of origin for animals diagnosed with tularemia at OADDL. The colors on the map correspond to climate condition zones.

the spleen and lymph nodes.

Tularemia is caused by *Francisella tularensis* and is a significant zoonotic disease. Extreme caution must be taken when handling infected cats and tissues so as to minimize human exposure.

– Dr. A. Ramachandran

The Basics of Real-Time PCR Testing

Use of the polymerase chain reaction (PCR) has revolutionized veterinary diagnostic testing. This technology allows for the rapid detection of pathogens in a test sample that may only contain trace amounts of the pathogen of interest. Additionally, the pathogen does not need to be viable in order to be detected.

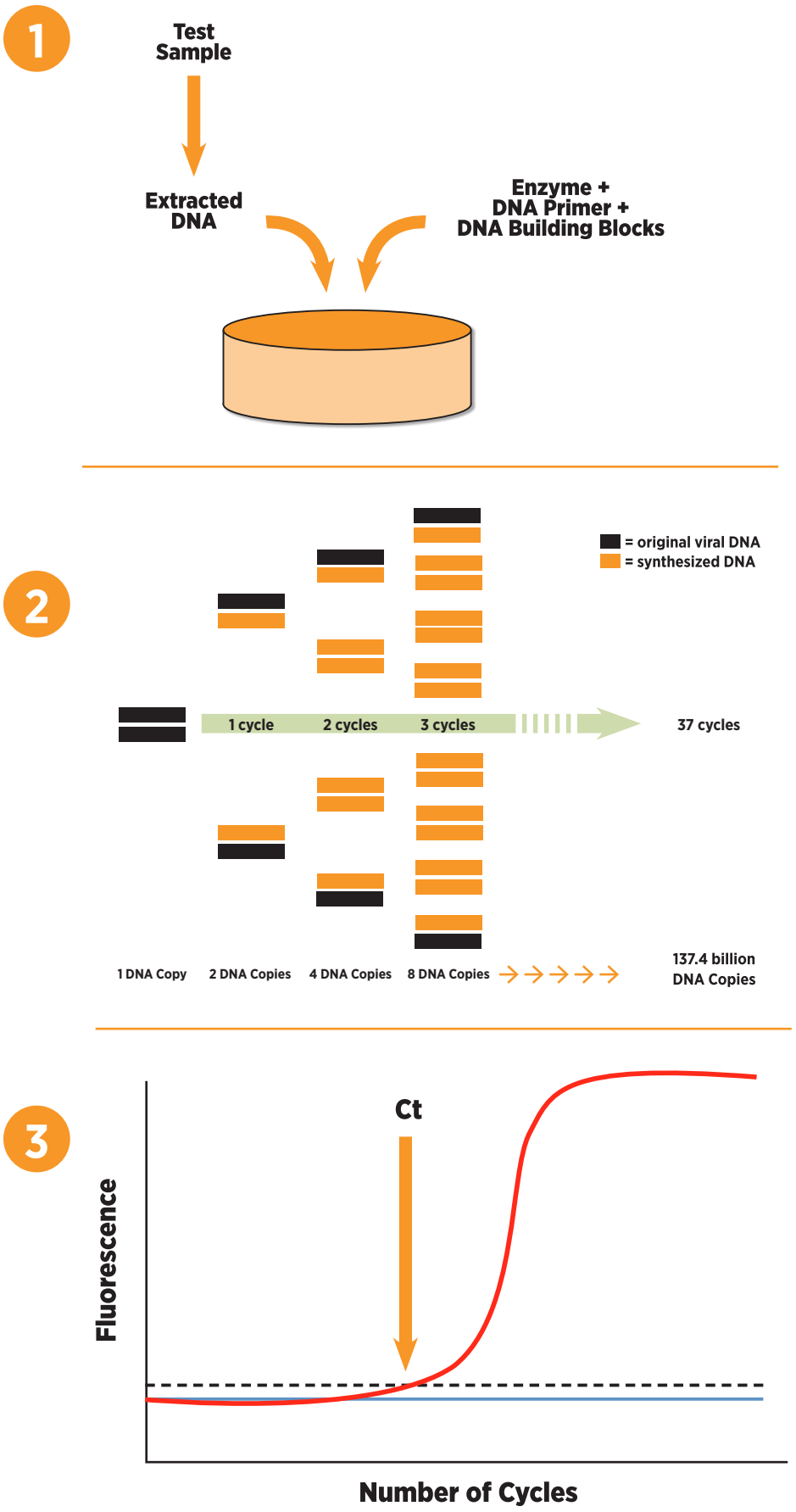
The real-time PCR process is surprisingly simple.

1. Once DNA (or RNA) has been extracted from the sample, it is mixed with an enzyme (polymerase) that promotes DNA synthesis, the building blocks (nucleotides) of DNA synthesis, and a DNA primer that is specific to the pathogen of interest (e.g. herpesvirus or parvovirus).

2. This mixture then undergoes a series of extreme heating (denaturing) and cooling (annealing) cycles that promote the synthesis of large quantities of new DNA from the small amount of original DNA in the test sample.

3. DNA amplification is monitored in real-time by the use of a fluorescent probe designed to bind to the DNA. A fluorescent signal is released after the probe binds to the DNA. As the amount of DNA expands exponentially with each successive cycle, the fluorescent signal increases above the background. The point at which the fluorescent signal can be differentiated from the background is called the cycle threshold (Ct). The Ct is inversely proportional to the amount of DNA present, meaning the lower the Ct value, the greater the amount of DNA in the sample.

– Dr. K. Bailey

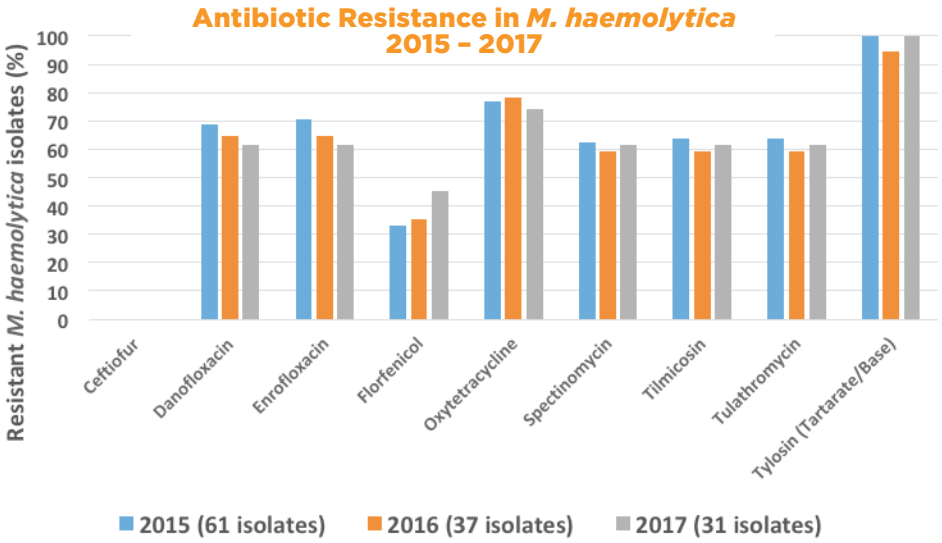


Bovine Respiratory Disease Update

Mannheimia haemolytica is the major bacterial pathogen involved in bovine respiratory disease (BRD) complex. Resistance profiles of *M. haemolytica* isolates obtained from bovine respiratory samples submitted to OADDL over the last three years are shown in the figure. Antibiotic resistance was determined by the minimum inhibitory concentration (MIC) method.

More than 50% of the bacterial isolates were resistant to Danofloxacin, Enrofloxacin, Oxytetracycline, Spectinomycin, Tilmicosin, Tulathromycin or Tylosin. All isolates were susceptible to Ceftiofur.

– Drs. S. Narayanan, A. Confer, M. Boileau, & A. Ramachandran



Letter from the Director

One of the exercises that we perform at OADDL in the first quarter of each year involves reviewing testing and operational data from the previous year. This is a valuable process since it provides real data on which to base decisions as we move forward.

For the second year in a row, OADDL received cases from all 77 counties in Oklahoma during 2017. We are extremely proud of this statistic and the value added to our state. The number of tests performed at OADDL increased in 2017 when compared to 2016, particularly the number of surveillance tests for diseases of economic importance to Oklahoma.

OADDL operates as a small business, a concept that is familiar to any owner of a veterinary clinic. Not unlike you, we face economic and strategic challenges each year; however, that does not diminish our commitment to helping you identify answers to your diagnostic cases.

Your input and suggestions are always welcome at OADDL.

– Dr. K. Bailey

Getting to Know Us

Brigett Broyles is the new voice when you call OADDL. Brigett joined OADDL as a client services representative with nearly 15 years of customer service experience.

She was born in Pawnee, raised in the Stillwater area and graduated from Ripley High School. She previously worked at OSU before becoming a stay-at-home mom for twelve years.

She has been married to her husband Luke for 18 years. Together they have three children Sierra, Kotah and Dalton; along with numerous animals. In her spare time she enjoys reading, cooking, fishing and spending time with friends and family.

Ideas/Suggestions for Future Content

We want to hear from you. Send us your ideas and suggestions to oaddl@okstate.edu.

Contact Us

Oklahoma Animal Disease Diagnostic Laboratory
Ph: 405-744-6623
Fax: 405-744-8612
www.cvhs.okstate.edu/oaddl
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