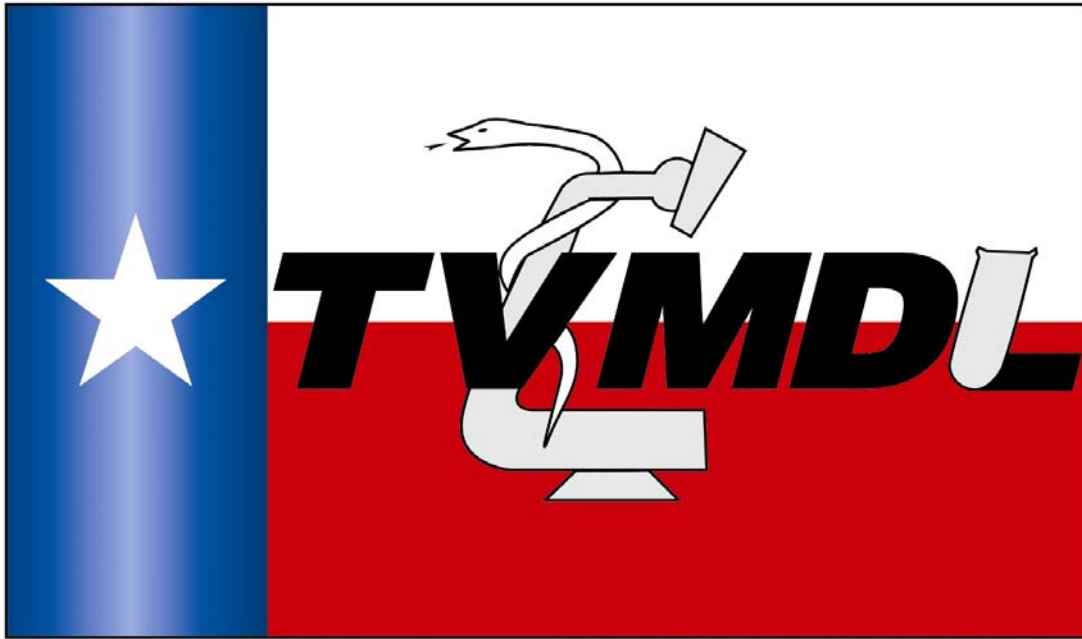


Texas Veterinary Medical Diagnostic Laboratory System



TVMDL is a State Agency that is a part of the Texas A&M University System.

Texas Veterinary Medical Diagnostic Laboratory System

College Station Laboratory

Texas Veterinary Medical Diagnostic Laboratory

P.O. Drawer 3040

College Station, TX 77841-3040

Phone (979) 845-3414, Toll Free 888-646-5623

Fax (979) 845-1794

(Courier address: 1 Sippel Road, College Station, TX 77843)

Amarillo Laboratory

Texas A&M Veterinary Medical Diagnostic Laboratory

P.O. Box 3200

Amarillo, TX 79116-3200

Phone (806) 353-7478, Toll Free 888-646-5624

Fax (806) 359-0636

(Courier address: 6610 Amarillo Blvd. West, Amarillo, TX 79106)

Center Poultry Laboratory

TVMDL Poultry Diagnostic Laboratory

635 Malone Drive

Center, TX 75935

Phone (936) 598-4451

Fax (936) 598-2741

Gonzales Poultry Laboratory

TVMDL Poultry Diagnostic Laboratory

P.O. Box 84

Gonzales, TX 78629

Phone (830) 672-2834

Fax (830)-672-2835

(Courier address: 1812 Water Street, Gonzales, TX 78629)

Information on tests offered, the price of individual test, email case reporting and 24/7 access to preliminary and final case results is available on our web site at

<http://tvmdlweb.tamu.edu>

History

The Texas Veterinary Medical Diagnostic Laboratory (TVMDL) was created by the 60th Legislature and was formally opened in College Station in 1969. The Texas A&M Veterinary Medical Diagnostic Laboratory in Amarillo opened its doors in 1975. In 1991 the 72nd Texas Legislature transferred responsibility for implementing the requirements of the Texas Pullorum-Typhoid Act and administrative responsibilities for the poultry diagnostic laboratories in Center and Gonzales from the Texas Agricultural Experiment Station to TVMDL. The Texas Racing Act stipulates that TVMDL will have primary responsibility for providing a drug testing service to the pari-mutuel horse and greyhound racing industries of Texas. All laboratories function as one unit and are part of The Texas A&M University System administered by the Board of Regents. In 1996, TVMDL assumed responsibilities for providing diagnostic services to the aquaculture animal industries. Overall requests for the services of the diagnostic laboratories have increased tremendously over the years, making the Texas Veterinary Medical Diagnostic Laboratory System one of the busiest in the world.

TVMDL provides service to the animal industries and companion animal owners of Texas by conducting laboratory tests on specimens from live or dead animals and their environment. The accuracy and prompt completion of laboratory results can provide critical information needed to assist owners, producers and veterinarians in decisions pertaining to appropriate treatment of individual animals, herd, or flock health management decisions. In addition, the laboratories facilitate commerce of Texas livestock by providing testing required for international, intrastate or interstate shipment of animals. The laboratories also provide critical data necessary to identify disease outbreaks including emerging and re-emerging diseases and issue appropriate warnings to individuals and governmental agencies. Research to improve existing testing procedures, develop new diagnostic tests, and study new or unusual diseases, is currently ongoing within the TVMDL System. The College Station laboratory also performs testing necessary to detect illegal drugs in horses and dogs involved in racing events where pari-mutuel wagering occurs in the State, as well as in animals entering certain livestock shows.

In 2002, TVMDL was selected by the United States Department of Agriculture to be one of only five state veterinary diagnostic laboratories in the nation to receive significant federal funding for surveillance and diagnostic services to detect infectious agents which could be introduced into Texas livestock accidentally or deliberately. These resources will be used in construction and equipping of a new “Biosafety Level 3” (BSL-3) facility that is capable of safely working with and containing these disease agents. This important component of our mission is expected to be in service in the spring of 2004.

How the Laboratory Functions

Laboratory tests are performed on many different types of specimens sent or brought to the laboratory. The efforts of the staff are directed to diagnosis only, and no treatment of sick animals or surgery is performed. Specimens received may be dead animals brought to the laboratory for examination or tissue specimens collected from animals in the field or in a veterinary clinic.

Investigation Reports

Speed is essential if the results of laboratory tests are to be of immediate value to the owners of sick animals. By having all of the laboratory departments work on each case at the same time, a powerful concerted effort is made to learn the causes of disease in the shortest time.

As tests are completed in each department, a preliminary report is telephoned, faxed, emailed, or mailed to the veterinarian. When all tests on a case are completed, a copy of the final report is sent to the veterinarian/submitter. A rapid electronic means of the dissemination of lab results is now possible through the use of email reporting, and archived reports from individual accounts can now be viewed through account internet access. See the Epidemiology and Informatics section for more information on this resource.

Charges

The laboratory has two sources of income: direct state appropriations and fees charged to the animal industries for services rendered. The submitting veterinarian is normally billed for the laboratory fees.

Summary

Above all, the mission of the laboratories is to serve the citizens of Texas by reducing the cost and pain of diseases in animals. Helping the veterinarian or client obtain accurate, fast, and reasonably priced diagnostic results by providing the best possible and up-to-date laboratory resources is the primary objective of the TVMDL System. The laboratories also serve as animal disease information distribution centers and are increasingly involved in preharvest food safety functions. The professional staff consists of 20 veterinarians, most with advanced degrees (MS or PhD) and/or board certification in specialty areas. In addition, 13 PhD's with expertise in various specialties round out our professional organization to give us a combined total of over 300 years of veterinary laboratory experience to share with our clientele. Consultation with veterinarians and animal owners via telephone, mail or electronic media is a daily activity.

Please call on us if the laboratory can provide information on animal diseases, help you with your disease prevention programs or with a disease outbreak. TVMDL Internet Address: <http://tvmdlweb.tamu.edu/>

Services offered by Laboratory in the TVMDL System:

	College Station	Amarillo	Center	Gonzales
1	Full Service (All species)	Full Service (all species)	Commercial Poultry	Commercial Poultry
2	Necropsy	Necropsy	Poultry Necropsy	Poultry Necropsy
3	Pathology	Pathology	*	*
4	Bacteriology	Bacteriology	Bacteriology	Bacteriology
5	Virology	Virology	*	Virology
6	Serology	Serology	Serology	Serology
7	Endocrinology	*	*	*
8	Clinical Pathology	Clinical Pathology	*	*
9	Molecular Genetics	Molecular Genetics	*	*
10	Toxicology	Toxicology	*	*
11	Aquatic Diagnostics	*	No	No
12	Electron Microscopy	Electron Microscopy	*	*
13	Epidemiology & Informatics	**	**	**

* Forward to College Station Laboratory

** Call College Station Laboratory with Epidemiology questions and request for informatics services.

Services

1. Front Office Administrative Staff:

The Administrative staff frequently provides the critical “first line of communication” between the individual laboratory sections and the client. They are dedicated to providing the best service possible to the citizens of Texas. The Administrative Staff in each Laboratory is responsible for completing a wide

variety of tasks that are critical to the process of rapidly and accurately reporting case diagnostic results. A list of those duties includes but is not limited to the following: 1. The transcription of hand written case histories into a computer based information and reporting system. 2. The timely distribution of case records in both hard copy and digital format. 3. Responding to telephone requests from clients needing case information on both preliminary and final case reports. 4. The general distribution of information relating to tests offered. 5. Coordinating client consultations with professional staff members when additional information is needed. 6. Acting to facilitate communication between laboratory sections and individual professional and technical staff members. 7. Keeping the laboratory financially sound for the citizens of Texas through the maintenance of an accurate accounting and billing system.



1. Necropsy and Specimen Receiving:

The most common reasons necropsies are requested is to determine why an animal died so that appropriate treatment can be initiated for other animals in a herd, band, flock, kennel, or litter of animals. Examination of the dead animal or tissues derived from a dead animal with little or no decomposition is obviously the best diagnostic specimen. While the entertainment industry frequently exhorts an autopsy as an unfailing diagnostic tool, reality is usually different. Along with carcass decomposition, pathogenic organisms, such as viruses and bacteria, also decompose and may not be isolated or identified from the severely autolyzed carcass. Therefore, decomposition of a carcass can often limit meaningful results from the diagnostic procedures. At the other extreme, the examination of tissue from an animal that has died

from lead poisoning or other heavy metal poisoning can yield positive results for many years after death. Reasons for performing a necropsy generally have either a legal or disease investigation basis.

1. Necropsy Room – Used to process tissues received from clients, examine the remains of animals received for diagnosis, and initiate tests to determine the cause of death or illness.



2. Specimen Receiving – Opening and assigning over 500 cases daily. Hundreds of boxes are received daily from the State of Texas, other states in the USA, and international clients.



2. Pathology:

The veterinary pathologist examines tissues collected at necropsy or biopsy samples taken from live animals. Microscopic examination of tissues often allows for the differentiation between infectious, neoplastic, toxic, nutritional, degenerative, and immune-mediated diseases. The distinction between these diseases processes or abnormalities are often critical to the choice of laboratory test to be completed and provide essential information that frequently leads to a definitive diagnosis.

1. Initial processing or “Trimming In” of tissues into plastic cassettes.



2. Loading the cassettes into an automated tissue processor for removal of water and replacement by solvents that facilitate tissue processing and staining.



3. Microtoming or “Sectioning” the processed tissues into thin (3-5 micron) sections suitable for microscopic evaluation.



4. Examination and evaluation of stained microscope slides by the Pathologist for the determination of microscopic lesions. These findings frequently become the “guide post” for other diagnostic efforts.



3. Clinical Pathology and Parasitology:

The Clinical Pathology Section of TVMDL performs tests on samples obtained from domestic animals, zoo mammals, wildlife species, reptiles and a variety of avian species. Specimens submitted for analysis include blood, body fluids, and tissue fluids or secretions. State-of-the-art instrumentation is utilized to perform complete blood counts, clinical chemistry panels, serum electrophoresis, metabolic profiles and an array of other serum chemistries. Tissue aspirates or body fluid analyses are screened to detect inflammation, infection, causative microorganisms, parasites, neoplasia, and degenerative processes. Many of today's veterinary hospitals have in-house blood chemistry and hematology units. TVMDL increasingly serves to confirm or verify these in-house results.

1. General laboratory area for hematology and blood chemistry tests.



2. An automated serum analyzer can complete up to 20 panels per hour. Currently 30 different analytical bloods test are offered, individually or as a component of 6 different panels. Panels are composed of multiple tests developed for different animal species.



3. The Cell Dyne 3500 Hematology Analyzer is capable of running hundreds of individual Complete Blood Counts (CBC) daily on any mammalian species.



4. Toxicology:

In this laboratory, specimens including animal tissues, ingesta, blood, urine, plants, feed, hay, water, baits, fertilizer, etc. are examined for poisons. Some examples of frequently diagnosed poisonings are arsenic, lead, insecticides, prussic acid, nitrate, antifreeze, blister beetle, anticoagulants, oil field drilling related chemicals, copper, aflatoxin, moldy corn, gossypol, urea, strychnine, etc. Poisonous plants are also frequently the cause of sickness and/or death in animals. Rumen or stomach content of animals can be examined under the microscope for specific plant parts, which helps identify poisonous plants. In addition to toxicities, the Toxicology staff also investigates nutritional deficiencies of trace metals (copper, zinc, selenium, cobalt, molybdenum, etc.) and of vitamins A and E in animal samples. The Toxicology staff also conducts Therapeutic Drug Monitoring, with in-house tests for phenobarbital, bromide, digoxin, and theophylline. We welcome phone consultations prior to submission of cases to discuss differential diagnoses and optimal sampling. Many times detecting a toxin depends on precise harvesting, handling and shipping of samples, as well as communication!

1. The videomicroscope has email and computer archive capability, allowing digital documentations of microscopic images of toxic plant material or substances that may cause injury when consumed by an animal. Identifying material from toxic plants or plants that have bioactive properties and correlating

those finding with the presenting symptoms in a case history may provide critical information to determine the cause of death or injury to an animal.



2. High Performance Liquid Chromatography (HPLC) is used to determine levels of anticoagulant rodenticides and vitamins in serum and liver samples.



3. Atomic Absorption Spectroscopy is employed in toxicological analysis of tissues and sera for trace elements and heavy metals.



5. Drug Testing:

The Drug Testing Laboratory was organized in 1987 in response to the passage of the Texas Racing Act. In addition to its primary responsibilities of analyzing samples from racehorses and greyhounds for illegal drugs, the DTL also tests samples for livestock shows, fitness screens, other racing jurisdictions, and various racing entities. State-of-the-art equipment and techniques such as immunoassay, thin layer chromatography, high performance liquid chromatography, gas chromatography/mass spectrometry, and liquid chromatography/mass spectrometry are utilized.

1. High Performance Liquid Chromatography (HPLC) used for identification of diuretics and anti-inflammatory drugs in animals racing in pari-mutuel betting events in Texas.



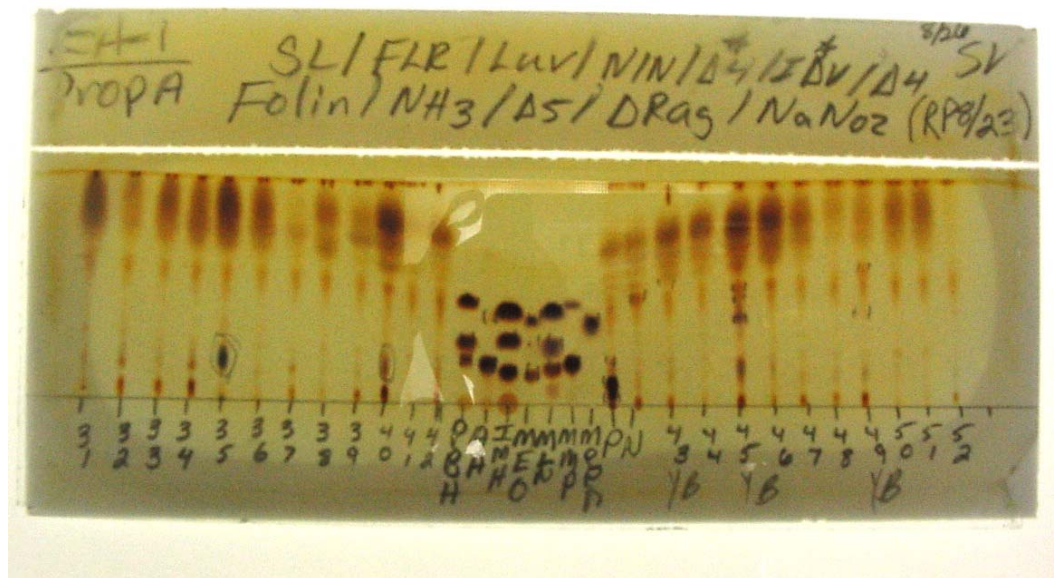
2. Equine and Canine General Drug Laboratory. Annually over 18,000 screening tests are performed on equine and canine samples to insure drug free racing competition in Texas.



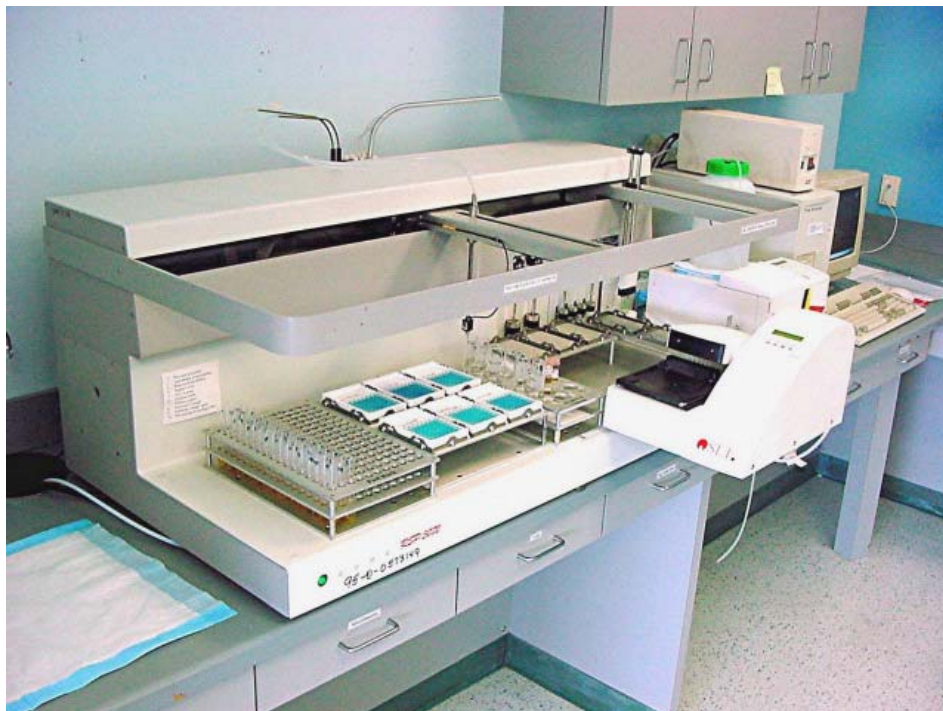
3. Liquid Chromatography Mass Spectrometry (LC/MS) State of the art analytical instrument used to identify minute quantities of a wide variety of drugs.



4. Thin layer chromatography plate used for basic drug screen (e.g. amphetamines and cocaine). In this plate, specimen 35 shows a positive reaction.



5. Automated robotic system for Enzyme-linked Immunosorbent Assay (ELISA) test that is capable of detecting potent drugs at very low concentrations.

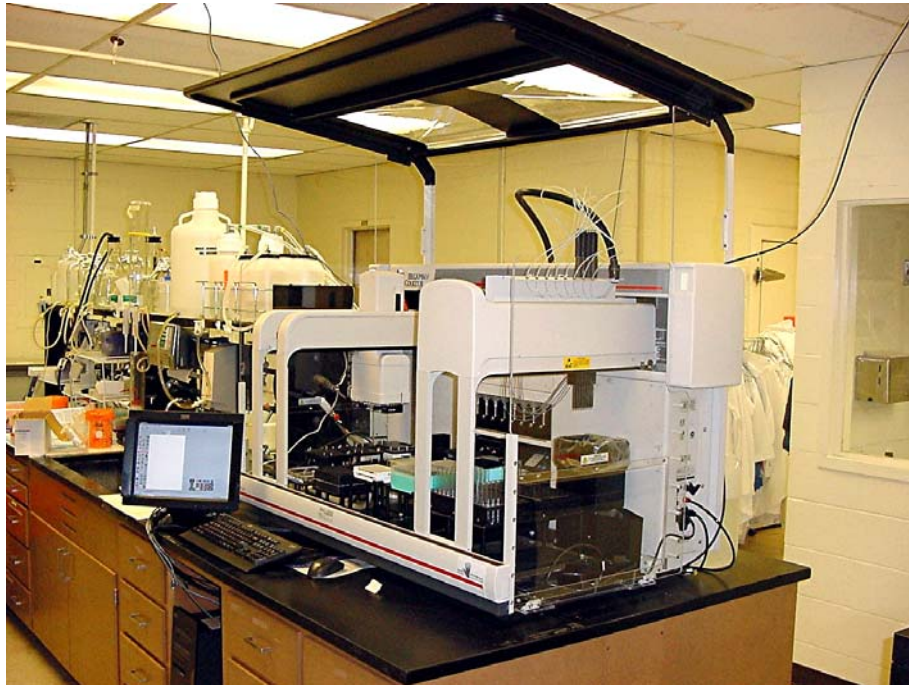


6. Serology:

The Serology Section performs many serological tests using various immunological methods such as Enzyme-linked Immunosorbent Assay (ELISA), Agar Gel Immunodiffusion (AGID), Immunofluorescence assay (IFA), Complement Fixation (CF), and Hemagglutination Inhibition (HI). Serological diagnosis of many infectious diseases can be made by determining the presence of antibodies in the serum and/or cerebrospinal fluid. Usually elevated antibody concentrations are detectable concurrently with or immediately following clinical signs of disease. The presence of significant antibody titer in most bacterial, fungal, parasitic, and rickettsial infections indicates a current or previous infection. An accurate interpretation of serologic test results often depends on access to information in the clinical history that could influence the immune response. Therefore, a detailed history including the current vaccination status of the animal, or herd, and any treatment provided is critical to a meaningful interpretation of the serologic test results.

In addition to serologic diagnosis of infectious diseases, immune profiling (herd health status) can be a valuable tool to determine the need for vaccination, culling, or other measures that should be initiated to maintain a clean herd. The Serology section also conducts many tests that are required for interstate or international shipment of food animals, companion animals, and their genetic products. Results from the various serological tests are incorporated into the TVMDL database, which is used to develop an understanding of the epidemiology of animal diseases in Texas.

1. The Beckman Coulter Biomek FX Automated Workstation, capable of simultaneously running multiple serologic tests on multiple samples concurrently with great accuracy. Multiple tests can be run on multiple samples with different test protocols and incubation times. This equipment is currently used for Johne's ELISA, Equine Infectious Anemia ELISA, and Bovine Leukosis ELISA test. If a serious foreign animal disease were introduced in Texas, this equipment has the ability to run up to 25,000 individual serologic tests daily. Those results could provide critical information that would be needed to identify and contain a disease outbreak.



2. Preparation of the “Coggins Test” for Equine Infectious Anemia.



7. Bacteriology:

The Bacteriology Section is responsible for bacterial and fungal cultures of samples submitted to TVMDL. The identification of organisms cultured from the tissues of live or dead animal can provide critical information that will be utilized in individual animal treatment decisions or it can provide the producer or veterinarian information that is essential for herd health management decisions. A wide variety of cultures are offered at TVMDL; some examples include cultures for *Bacillus anthracis*, *Mycobacterium paratuberculosis*, *Microsporium canis*, *Tritrichomonas foetus*, *Mycoplasma spp.*, and *Rhodococcus equi* among others. In addition, both Minimal Inhibitory Concentration (MIC) and Kirby Bauer disk diffusion antibiotic sensitivity testing is conducted to assist licensed practitioners in the selection of appropriate antimicrobial therapy for bacterial diseases.

1. A wide variety of selective growth media, biochemical substances, commercial diagnostic kits and automated fluorescence-bases technologies are used to identify the myriad of organisms isolated in the Bacteriology Laboratory.



2. Professional staff with specialized training and skilled technicians with years of experience are dedicated to the 365-day a year work effort that is necessary to provide the most accurate tests results with the quickest “turnaround time “ possible.



3. To achieve accurate meaningful laboratory results, it is essential to begin with good quality specimens and integrate accurate, rapid laboratory test results with the information provided in a complete clinical history.



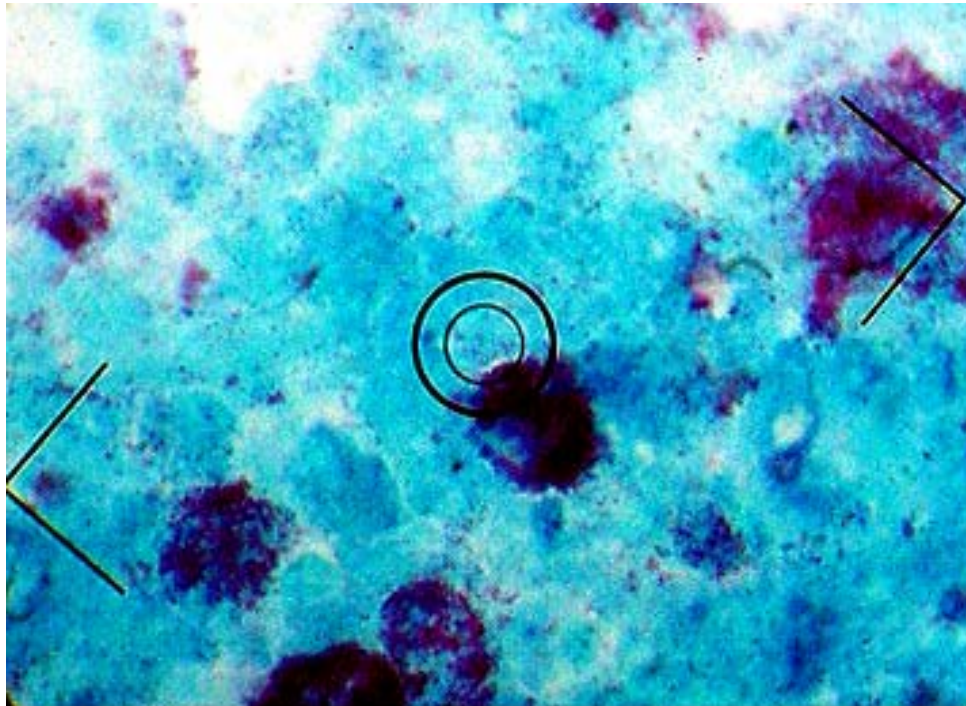
8. Chlamydiology:

Chlamydia are significant pathogens in birds as well as many mammalian species (cats, pigs, cattle, sheep, and goats). The primary screening test for Avian Chlamydia infection at TVMDL is the elementary body agglutination (EBA) test. This serological test is especially sensitive in detection of IgM, which is the first class of antibody to appear after exposure to a pathogen. TVMDL has been performing this test in large numbers for over ten years, and the EBA test has become recognized by many avian practitioners as an invaluable tool for detection of clinically infected and sub-clinically infected birds. This section also offers Gimenez staining of tissues or body secretions and cell culture isolation from either swabs or tissue

1. Technician adding reagents in the Elementary Body Agglutination (EBA) test. This test can demonstrate a serologic response to the Chlamydia organism.



2. Chlamydia micro colonies at 1000X under the light microscope.



9. Virology:

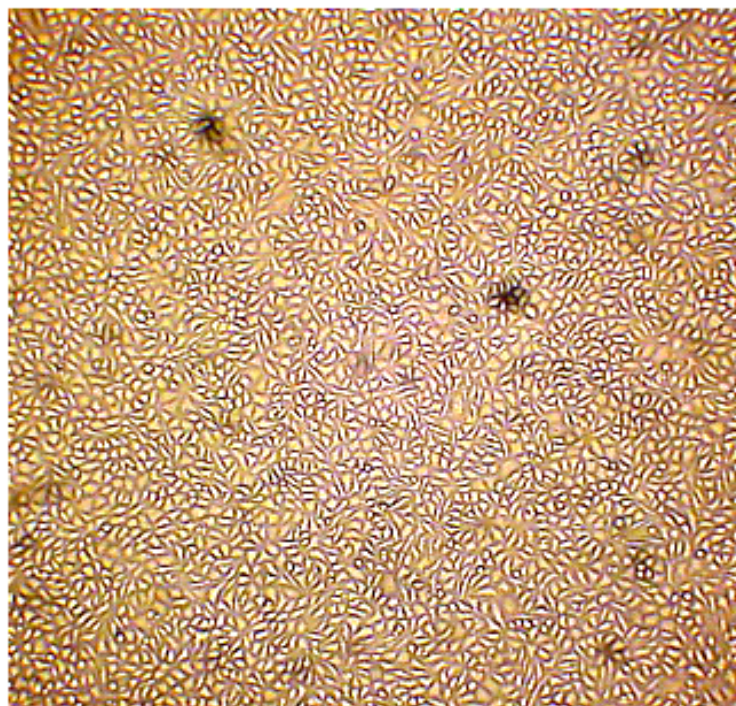
The Virology Laboratory is responsible for identifying viruses or immune response to viruses in tissue samples taken from animals that are clinically ill or are suspected of acting as sub-clinical carriers of viruses capable of causing disease in other animals. Viral diagnosis is based on three general diagnostic approaches: 1) Microscopic examination of tissues for the presence of viral antigens, 2) Isolation and identification of the viral agent, 3) Demonstration of a significant antibody titer to a given virus.

Although viral infections are not generally treatable, diagnosis can be important in determining the prospect of recovery in an individual animal or in herd health management decisions developed to prevent the spread or future occurrence of the disease.

1. Tissue cells grown in tubes are inoculated with specimens from active cases. If abnormalities in cellular structure or growth patterns are observed, these microscopic changes or Cytopathic Effects (CPE) can be indicative of a viral infection that requires further investigation.



2. A monolayer of healthy tissue cells showing normal growth characteristics.



3. Tissue culture cells showing CPE associated with viral infection.



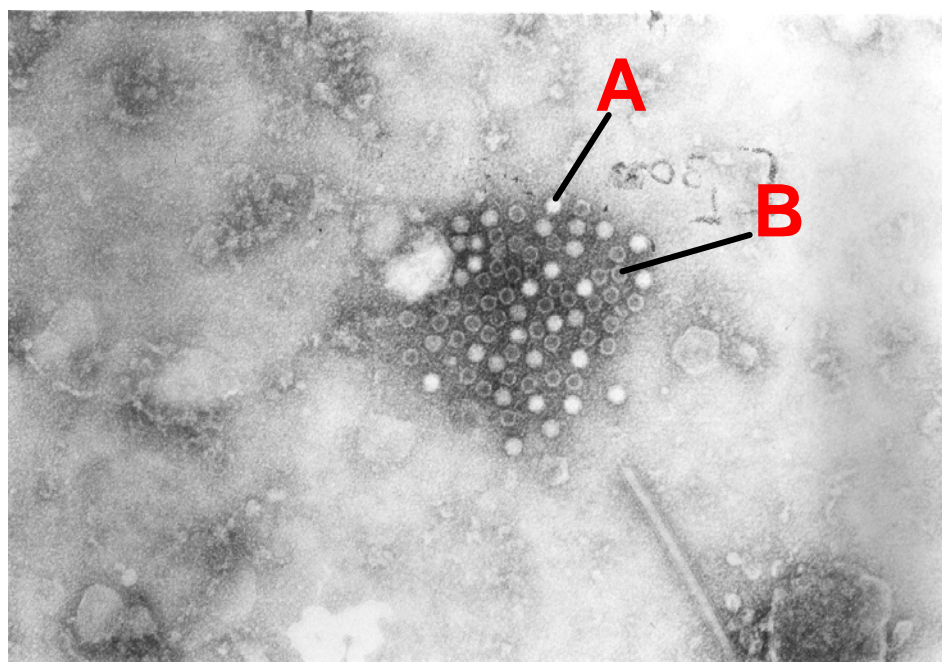
10. Electron Microscopy:

The Electron Microscope is used for the rapid identification of viral and other agents by visualizing them in specimens submitted for viral disease diagnosis. It is especially useful when there is a need for rapid diagnosis of enteric viruses such as Parvovirus, Coronavirus, Rotaviruses, and some skin infections, which involve viral agents such as Poxvirus and Papillomavirus.

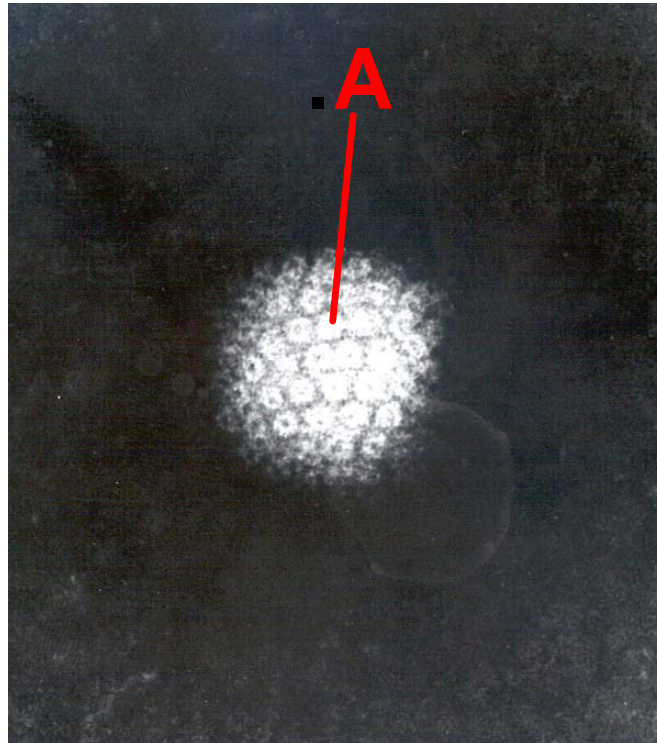
1. The Electron Microscope has the ability to resolve particles down to 2 angstroms, which will detect the smallest viral particles. Positive results require the presence of large number of virus particles in the sample but it can give quick results when needed.



2. Canine Parvovirus in a negative stain preparation showing, (A) the mature virus that has completed the replication process and (B) immature “hollow” particles.



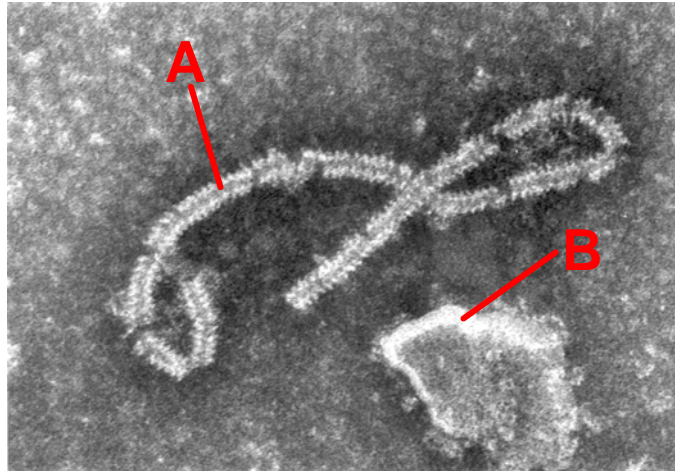
3. Non-enveloped herpes viron showing icosahedral structure and capsomer formations (A).



4. Rhabdovirus family better known for rabies virus but also the causative agent of vesicular diseases (Vesicular Stomatitis) and Spring Viremia of carp.



5. Viruses from the Paramyxoviridae family include the Paramyxoviruses (Newcastle virus), Morbillivirus (Canine distemper virus) and Pneumoviruses (Bovine Respiratory Syncytial Virus). Both non-enveloped (A) and enveloped (B) stages are visible below.



11. Endocrinology:

This busy laboratory uses state-of-the-art technology to determine the levels of various hormones and other components of the blood to aid in the confirmation of diseases such as Cushing's, hyperthyroidism, hypothyroidism, pancreatic insufficiency, neonatal isoerythrolysis, acute pancreatitis, chronic renal disease, autoimmune disease of the thyroid, the detection of pregnancy and stages of the estrous cycle. In addition, semen analysis (morphology and concentration) is determined on both fresh and frozen semen to evaluate the fertility status of male breeding animals.

1. Radioimmunoassay and chemiluminescence assays are performed to determine concentrations of hormones. Depicted in the picture is an Immulite (chemiluminescence) machine, which utilizes flashes

(non-radioisotopic) of light based on the principle of the lightning bug (chemical reaction). In most cases, the sensitivity using chemiluminescence is greater than that which can be obtained using conventional radioimmunoassay.



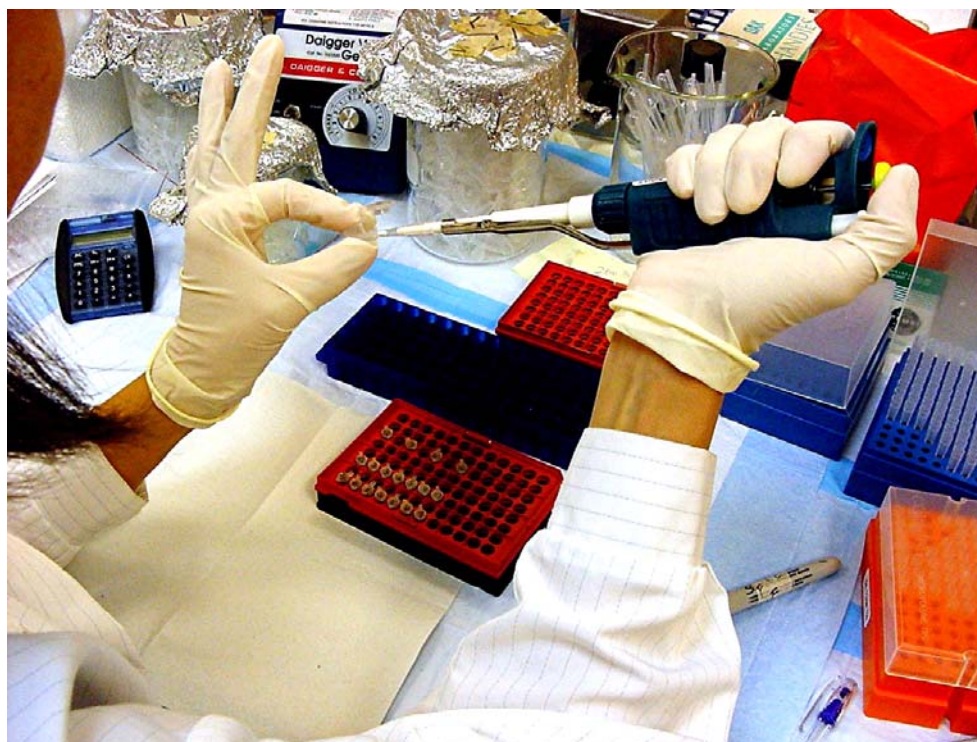
2. Preparation of samples is done to ensure quality control. Each sample is loaded and evaluated as to the quality of the sample. Barcodes associated with accession numbers help to ensure that loading is performed on a particular sample that corresponds with a particular accession number.



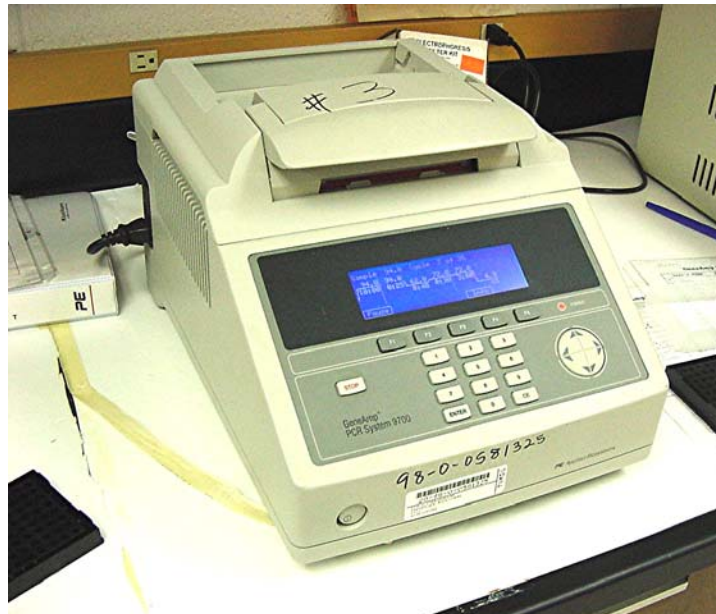
12. Molecular Genetics:

This relatively new laboratory has rapidly expanded the list of tests available for disease diagnosis at TVMDL. The tests are based on the identification of minute amounts of genetic material (DNA or RNA) derived from infectious microbes in the tissues of animals submitted for diagnosis. In the 5 years that this section has been operational, approximately 40 assays have been developed for the identification of both viral and bacterial pathogens. The basis of these tests is the polymerase chain reaction (PCR), which does not require culturing the pathogen. By eliminating the need to isolate or culture the pathogen, the test results are often available more quickly, when compared to conventional pathogen identification procedures. Results should be interpreted in the same manner as culture results, since the detection of a pathogen's DNA is an indication that the pathogen was present. A limited number of tests designed to detect genetic defects are also offered.

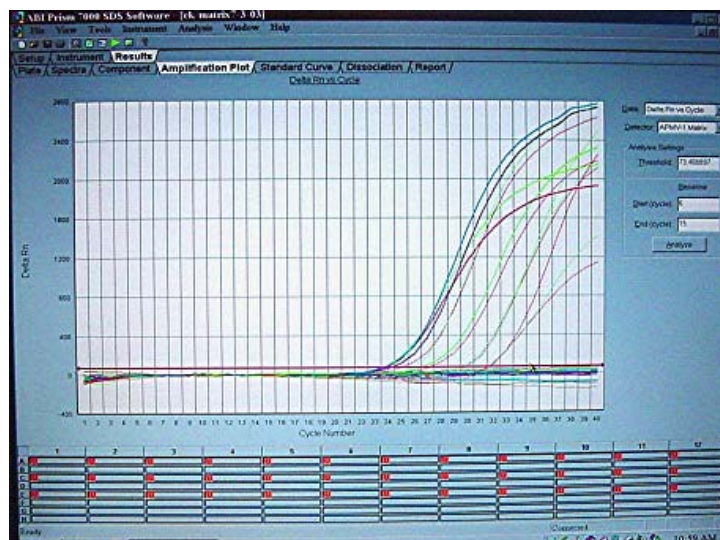
Technician pipetting reagents in the initial setup for the PCR test.



2. The Perkin Elmer 9700 PCR Thermocycler. This machine is capable of identifying minute amounts of genetic material from a suspected pathogenic organism.



3. The computer screen from the Applied Bio Systems 7000 real time PCR analyzer showing a positive result after 35 heat/cool cycles.



13. Aquatic Diagnostic Laboratory Medicine:

In response to the diagnostic needs of both the private and commercial sectors of the Texas aquaculture community, TVMDL started an Aquatic Diagnostics Section in 1996. Health evaluation and disease diagnostics for all aquatic species are offered at the College Station laboratory. Diagnostic services include routine necropsy, histopathology, bacteriology, virus isolation and molecular-based testing for aquatic pathogens, as well as water quality analysis and health management recommendations. Aquatic case submissions are received from commercial producers, veterinary practitioners, private hobbyists and recreational pond owners, as well as the Department of Texas Parks & Wildlife. As an APHIS-approved lab for shrimp viral testing, surveillance testing is also conducted to facilitate health evaluation and commerce of the commercial shrimp product. To optimize sample collection, please call the lab prior to case submission to discuss possible diagnostic options and sampling conditions.

1. A technician prepares a sample for PCR analysis in a case involving a suspected aquatic pathogen



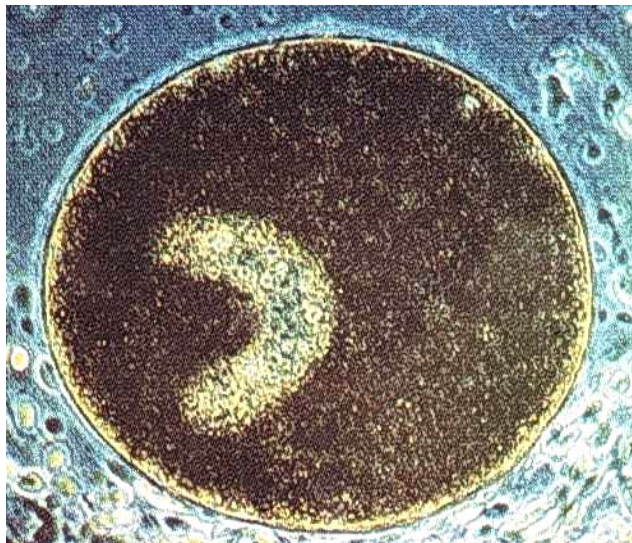
2. A normal marine shrimp is shown at the top. The bottom 3 shrimp show “Black Gill Disease” associated with a parasitic infection



3. Example of a fish necropsy conducted visualize gross lesions and collect diagnostic specimens.



4. Photomicrograph of the “Ich” organism that causes “White Spot Disease” in fish.



5. Severe deep skin ulceration in a catfish with “Winter Kill” syndrome.



6. A case of severe ulcerative disease in a Koi due to infection by an atypical bacterial pathogen.



14. Poultry Pathology:

The laboratories in Center and Gonzales are devoted to poultry diagnostics. They provide testing services ranging from necropsy to microbiology, histopathology, and serology, to monitor poultry flock health status and diagnose disease conditions in all avian species. The College Station and Amarillo laboratories also maintain expertise in these fields and provide most of these services for the poultry industry.

TVMDL is also charged with the administration of the Texas Pullorum-Typhoid Act passed by the Texas Legislature. Poultry epidemiologists survey thousands of birds for these diseases in every corner of the state to keep the incidence of *Salmonella pullorum* low and to protect all poultry operations in the State.

1. *Salmonella* sp. isolate growth on XLT4 selective agar media after 24 hours of incubation.



2. Reading the plate agglutination test Mycoplasma antigen.

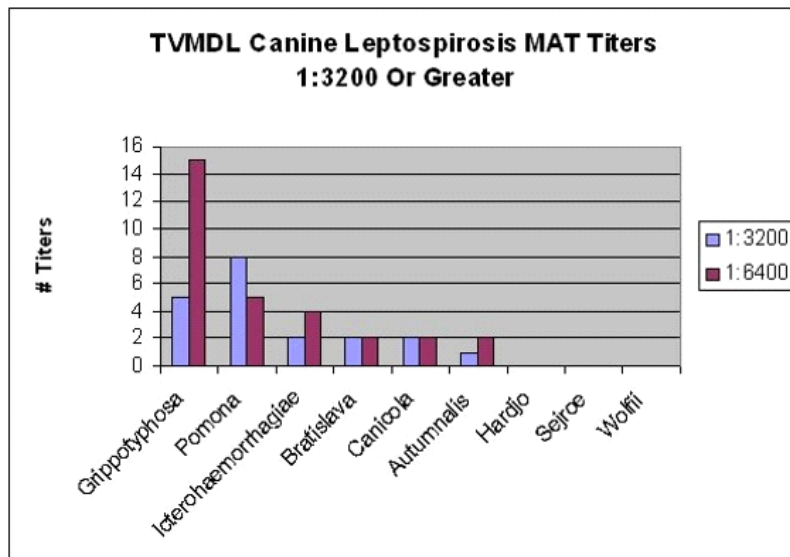


15. Epidemiology & Informatics:

Epidemiology Section— TVMDL performs diagnostic testing on a wide variety of animals from all over Texas. The epidemiology section manages an enormous database of laboratory test results, which enables passive surveillance of emerging, endemic, and foreign animal diseases, geographical and seasonal distribution of diseases, antibiotic sensitivity patterns and even detection of a possible bio-terrorist events. Whenever a significant outbreak is detected, appropriate warnings are distributed to veterinarians, ranchers, health department officials, and regulatory agencies directly by phone, via the media, bulletins in TVMDL case reports, and articles in trade and professional journals. Finally, in-depth epidemiological studies are often performed to better understand the incidence and distribution of select diseases of concern to practitioners, ranchers and pet-owners. If you have a question regarding the status of a disease in Texas from a diagnostic laboratory perspective, give the epidemiology section a call.

Informatics Section—The informatics section designs, develops, implements and maintains laboratory information systems that accession cases, collect laboratory results, and report back to submitting veterinarians, ranchers, and pet-owners in the most timely manner. The TVMDL web site is also managed by this section and includes the test schedule, disease bulletins, professional staff contact information and more. TVMDL clients can choose to receive their case reports by regular mail, email (a free service) or auto-fax (\$1.00/Case Report). Auto-email offers the advantage of immediate reporting as soon as a lab result is available at no additional charge. Clients may also access all their case reports and invoices on the TVMDL web site at <http://tvmdlweb.tamu.edu>. Call us to become web-enabled and to receive more information on how your clinic can begin utilizing these cutting-edge electronic laboratory services today!

1. Chart from a recent study to look at the serovars implicated in canine cases of Leptospirosis submitted to TVMDL.



2. Recent distribution of West Nile IgM positive cases submitted to TVMDL

