



TVMDL protects man and animals through more than

Two Million Tests a Year

By SALLY COLBY

Every Texan — urban, suburban and rural — benefits from the Texas Veterinary Medical Diagnostic Laboratory (TVMDL), where animal illness is diagnosed by veterinarians and technicians. Their work assures a safe food supply and ultimately protects the health of humans and animals.

The system, established nearly 40 years ago, includes four facilities. College Station, which can operate at biosafety level 3 (BSL-3) at a moment's notice, is the largest laboratory and serves as headquarters.

Another full-service lab in Amarillo, and poultry laboratories in Gonzales and Center, complete the system.

About 200,000 cases — more than two million tests — are handled each year. The lab's purpose, according to Executive Director Dr. Lelve Gayle, is to serve the animal industry.

"We have an excellent relationship with the veterinary profes-



Aid and Educate

The mission of the Texas Veterinary Medical Diagnostic Laboratory (TVMDL) is to aid and educate the animal industries of Texas in identifying and preventing animal diseases, nutritional deficiencies and intoxications so as to make productive use of the state's natural resources, and to help protect the health of its citizens by identifying those diseases transmissible from animal to man. In addition, our mission is to facilitate the economic growth of our state by providing the necessary drug and residue tests for the pari-mutuel racing industry and health tests for national and international shipment of animals and their products.

sion and also the animal industry groups — cattle raisers, cattle feeders, swine producers, the poultry federation,” says Gayle. “They are major supporters of the laboratory, and those are the people we work for. The practicing veterinarian serves as a conduit, but ultimately, it’s for the producer — they have a major say in telling us how we’re doing.”

Customer service at TVMDL is a priority. Instead of having to struggle through a gauntlet of automated prompts, anyone who calls the lab during working hours speaks with a person.

The labs strive for quick turnaround, with test results available through telephone, fax, e-mail or regular mail.

The TVMDL maintains a Web site from which clients can access test results or learn about animal health issues. Also on the Web site is a list of available tests, lab fees, turnaround time and suggestions on how to submit

samples.

TVMDL handles a lot of routine livestock tests such as equine infectious anemia, bovine leucosis and avian influenza. But more than half of the lab’s work is for companion animals, including diagnosis of infectious diseases in dogs and cats that can be transmitted to humans.

Gayle considers the companion animal work a blessing, because it helps keep the fees lower for livestock producers who, in his words, are “feeding the country.” Specialized tests, especially those that are not subsidized by state funding, cost more than routine tests.

The lab does not conduct rabies testing — that is handled by the Texas Department of Health in several labs across the state.

Most cases come to the lab through practicing veterinarians, but reports can be sent to livestock owners as well. Gayle says because results are medical re-

ports that require medical interpretation to understand what they mean, people are better served by working with and through their veterinarian.

Mobile resource

The newest addition to TVMDL's arsenal against animal disease is a mobile unit. Gayle's original goal was to build a mobile BSL-3 testing lab that could be moved to the site of a disease outbreak as needed. But, despite careful planning, the logistics of operating a lab of that size, about 200 to 300 square feet, just didn't add up.

Even with adequate funding, the dilemma of moving, housing and feeding large numbers of technicians was a major stumbling block. And there was no reasonable solution to the problem of transporting equipment and large quantities of reagents necessary for testing.

"For high-volume testing, we have to use a lot of very expensive, very sensitive automated equipment," says Gayle. "It's not easy to pack up, move 800 miles, set it up and expect it to operate without two weeks worth of validation tests. It's impractical in a high-consequence disease outbreak — you need to be testing hundreds of samples within two hours."

Although additional personnel and multiple mobile laboratories might be a solution, Gayle realized the chances for funding such were slim. Because of the high cost of building and staffing a BSL-3 laboratory, the next reasonable step would be to establish parameters for what would work.

"We must be able to respond in two hours once we suspect a high-consequence disease, such as foot-and-mouth disease, and we must be able to ramp up to capacity within 12 hours," says Dr. Gayle. "We can't do either with a mobile unit."

However, a rolling laboratory does have a critical role in the face of a high-consequence dis-

ease. In the event of an outbreak, it provides mobility and doubles the capacity at the testing site.

"We need to be able to put a mobile unit as close to the outbreak as possible so that samples could be transported to that mobile unit," says Dr. Gayle. "Those samples need to be properly identified and packaged so they are not infectious during transport. Information that goes with samples can be sent electronically to the College Station testing laboratory, so that information is there when the samples arrive."

Mobile preparedness

The 48-foot by 7.5-foot enclosed BSL-3 mobile emergency unit — the only one of its kind in the nation — is now equipped and ready to go. Samples can be brought in, decontaminated, identified, repackaged, and moved out by whatever means of transportation is available from the outbreak area to College Station. If the outbreak location is more than 200 miles away, Gayle will seek assistance from the governor's office for disaster preparedness, which is aware of TVMDL's role and is willing to assist in any way they can.

"From a logistical standpoint, it's much easier and more cost effective to send a plane with two people in it than it is to send 30 people," says Gayle of the current plan. "Even if the outbreak was in Brazos County, this unit would be extremely important because we could process samples there before they go to the two testing laboratories. That (mobile) unit freed up a one-million dollar laboratory."

Gayle is training members of the College Station professional and technical staff to prepare for a high-consequence disease. Personnel are divided into teams of three that will operate in six-hour shifts, two teams at a time.

Through shift work, the lab will have the capacity to test for 18 hours in the two BSL-3 laboratories at College Station. Texas

A&M students may be called upon to assist as needed, but won't be depended on for operations because they may not be available on short notice.

If the College Station facility receives a presumptive positive, the lab becomes operational at BLS-3. The state and federal regulatory agencies are notified, the area is quarantined and there is no movement while the confirmatory tests are being run. All of the testing is done through this laboratory.

"We receive 500 to 600 samples every day from around the state," says Dr. Gayle. "A veterinarian may or may not suspect a high-consequence disease, but if we determine that it is a high-consequence disease, we immediately secure the samples and contact the national veterinary services laboratory for confirmation."

"These diseases are too important to have one lab say 'that's it,' so confirmation is done at the federal lab in Ames, Iowa, or Plum Island, N.Y. Once that's done, we do all of the testing here. But we want the index case — the first case — confirmed by a second capable lab."

The unit will soon be moved to Amarillo, and then to the two poultry labs for hookups to those facilities. Gayle says in the future, there may be other sites in the state that will have hookups established "where we can pull up, hook up and begin processing samples."

"We're trying to build up capacity from 1,800 tests to nearly 4,000 tests," he says and is observing companies that handle large numbers of human lab tests to see how their techniques might be applied to TVMDL. "That takes a lot of people, a lot of logistics in terms of reagents, and the ability to dispose of contaminated material through incineration and heat sterilization."

The TVMDL has memorandums of understanding with Louisiana, Oklahoma and New

Mexico. During a case overload due to disease outbreak, some of the routine testing can be diverted to those states and TVMDL will reciprocate.

A suspected zoonotic disease (a disease that can be spread from animals to humans) is reported immediately to the Texas Department of Health. TVMDL has frequent contact with state agencies and reports test results that may indicate a diagnoses of interest (i.e. zoonotic or program diseases).

Openings in a highly educated work force

Nearly everyone on the TVMDL technical staff has at least a bachelor's degree in a science field. There are employment opportunities for those who have a degree in, for example, chemistry and microbiology, or more specialized fields such as immunology, bacteriology and molecular diagnostics.

However, Gayle is concerned about the lack of food animal veterinarians for the future. A high percentage of those enrolled in vet school are women, who often choose small animal practice over the hard physical work that comes with a food animal practice.

One of the main goals Gayle has established for the TVMDL is increasing the efficiency of operation.

"We spend a lot of time and effort developing our high consequence disease testing capabilities, particularly in large capacity testing. Our goal is to test 4,000 each day — I don't believe they can move more than 4,000 cows through the chute in a day. But we aren't there yet. We can do a lot, but I'd like to double that capacity in the next six months.

"Our focus is on service to the animal industry — we don't do teaching or research. We live very close to the animal industry."

For additional information on the TVMDL, visit <http://tvmdl-web.tamu.edu>. ■