

Developing Biosurveillance and Anti-Bioterrorism Capacity

Background

Preventing a devastating bioterrorism event or animal or zoonotic (infectious to humans) disease outbreak requires top-notch expertise and technology. A laboratory fully-staffed with veterinary diagnosticians trained to recognize the first signs of a threat is crucial for protecting the health, food security, and financial well-being of all Texans.



Program Description

The Biosurveillance and Anti-Bioterrorism Capacity Development Program of the Texas A&M Veterinary Medical Diagnostic Laboratory (TVMDL) will invest in specialized tools and disease diagnosis training for laboratory specialists. These specialists will augment existing staff and replace expected shortages of experienced veterinarians. The added capacity in technology and expertise will enhance TVMDL's ability to deliver early, rapid, and accurate detection of animal and zoonotic disease threats, potential bioterrorism events, and changes in antimicrobial resistance of pathogens. Real-time analysis of disease surveillance data will ensure timely communication to decision makers and help mitigate the effects of disease outbreaks.

Exceptional Item Request
FY 2020-21
\$2.34 Million
over 2018-19 funding levels

Objectives

- Build a veterinary diagnostic workforce with specialized training in laboratory disease diagnosis.
- Leverage existing laboratory automation to maximize human resource and workflow efficiencies.
- Develop epidemiologic data analytics and an IT infrastructure for disease reporting and communications.



Data Analysis. Accurate Detection. Rapid Response.



Staffing needs:

- 5 laboratory professionals
- 2 veterinary trainees
- 3 technicians
- 1 support staff member

Equipment needs:

- 2 automated liquid-handling robots
- Sample-preparation robots
- Barcoding instruments
- Computer-to-instrument interfacing software
- High-throughput testing platforms
- Analysis and reporting software

Added epidemiology expertise is critical to achieve the following:

- Develop sound surveillance strategies.
- Rapidly analyze test results.
- Identify trends.
- Supplement the work of current veterinarians, scientists, and IT professionals.
- Validate new test methods.
- Communicate vital information to clients and decision makers who will implement data-driven responses to disease outbreaks.

Sample-handling automation and robotic tools will enable rapid progress:

- Allow machines to take over routine and repetitive testing procedures.
- Free up skilled workforce for higher-level tasks such as data analysis, novel-assay development, and information communication.
- Maximize workflow efficiency.
- Expedite testing results.
- Reduce human errors.
- Increase throughput.



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