

## Protecting the world's agriculture and public health from high-consequence infectious diseases

### Biological research

- Vaccines for transboundary diseases
- Agricultural screening tools
- Sample preparation/preservation tools

### Integrated data-sharing tools

- Emergency Response Support System
- Biosurveillance Field Entry System
- Pakistani Laboratory Information Management System

### Training

- Advanced training for diagnosticians, epidemiologists, technicians and inspectors

**Vision:** To be a leading international partner in providing cutting-edge, multi-disciplinary, basic and translational research and education.

#### Outcomes

- Enhance resiliency
- Increase capacity
- Build sustainability

### About the FAZD Center

Founded in 2004, the National Center for Foreign Animal and Zoonotic Disease Defense (FAZD Center) performs research and develops products to defend the world from high-consequence infectious diseases.

- Leverages the resources of multiple major universities, private entities, national laboratories and partners at the state, federal and international levels.
- Focuses on research, education and outreach to prevent, detect, mitigate and recover from high-consequence infectious diseases.
- Champions the One Health concept with its research on the high-consequence diseases that are transmissible between animals and humans, and through its partnerships with the Centers for Disease Control and Prevention and the U.S. Department of Agriculture.

### Mission

To protect world agriculture and public health from high consequence transboundary, emerging and/or zoonotic diseases by:

- Conducting research.
- Developing technology.
- Transitioning products.
- Training workforces.
- Communicating results.

### Director: Tammy R. Beckham, Ph.D., DVM



Dr. Beckham is recognized as an international expert in transboundary animal diseases. In addition to leading the FAZD Center, she directs the Texas A&M Veterinary Medical Diagnostic Laboratory, one of the world's busiest veterinary diagnostic labs. She is the former

director of the Foreign Animal Disease Diagnostic Laboratory at the United States Department of Agriculture's Plum Island Animal Disease Center in New York. As a captain in the U.S. Army, she served at the U.S. Army's Medical Research Institute for Infectious Diseases in Frederick, Maryland.

### About high-consequence infectious diseases

- At least 60 percent of all human pathogens are zoonotic, according to the Centers for Disease Control and Prevention.
- 75 percent of recently emerging infectious diseases that affect humans are of animal origin.
- The most dangerous of these animal diseases pose catastrophic risks to human health, livestock health and the agricultural economy.

## Alignments

Texas A&M University System  
U.S. Department of Homeland Security  
U.S. Department of Agriculture  
Agricultural and allied industries  
Bio-pharmaceutical companies  
The private sector  
National laboratories

## International partners

### Australia

Elizabeth Macarthur Agricultural Institute

### Bangladesh

Chittagong Veterinary and Animal Science University

### Canada

Canadian Food Inspection Agency  
Manitoba Dept. of Agriculture  
Nova Scotia Agricultural College  
Government of Alberta

### Egypt

Government Veterinary Service

### Kazakhstan

Kazakhstan National Veterinary Laboratory  
National Center for Biotechnology

### Kenya

Ministry of Livestock

### Pakistan

Pakistan National Veterinary Laboratory  
National University of Science and Technology

### Tanzania

Sokoine University (Arusha)  
Ministry of Livestock and Fisheries  
Development (Dar es Salaam)

### Thailand

Chulalongkorn University

### Turkmenistan

Ministry of Agriculture

### Uganda

Makerere University  
National Agricultural Research Organization  
(NARO)

### United Kingdom

The Pirbright Institute  
Forsite Diagnostics, Inc.

## Biological research

Vaccines for transboundary diseases

- Identifying and developing vaccine candidates for African swine fever by applying the novel approach of reverse vaccinology.

Agricultural screening tools

- Developing a diagnostic test that will distinguish animals infected with Rift Valley fever virus from vaccinated animals – which could dramatically lower cull rates and help restore export markets.
- Validating a real-time test to rapidly detect foot-and-mouth disease virus in bulk-tank milk samples.
- Developing a diagnostic kit to detect antibodies to foot-and-mouth disease that will cost less, produce results faster, and distinguish infected from vaccinated animals.
- Developing a real-time, molecular assay to test oral fluids for African swine fever, foot-and-mouth disease and other high-consequence infectious diseases.

Sample preparation/preservation tools

- Developing a technology that will allow scientists and diagnosticians to collect, transport and store biological specimens without the need for refrigeration.

## Integrated data-sharing tools

Emergency Response Support System

- Enhances information sharing between decision makers and emergency managers during an outbreak.
- Organizes vital data from multiple sources into a single, easy-to-use format.

Biosurveillance Field Entry System

- Allows veterinarians and inspectors to enter clinical animal health data from livestock premises, feedlots and markets.
- Empowers epidemiologists and analysts to aggregate and analyze the data using visual, geospatial and temporal tools.

Pakistani Laboratory Information Management System

- Supports routine lab operations, such as receiving samples, performing tests and reporting results.
- Provides biosurveillance capability through monitoring key results, analyzing data and producing reports.

## Training

Advanced training for diagnosticians, technicians and inspectors

- Two-day workshops held in Astana, Kazakhstan, trained 14 workers in molecular methods, biosafety measures or diagnostic epidemiology.
- Two fellows from Kazakhstan trained for 12 weeks at Texas A&M University, one in diagnostic detection, the other in epidemiology.
- The Kazak government has agreed to fund future programs.
- Similar programs are in progress with Egypt, Uganda, Tanzania and Kenya.