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It should come as no surprise Texas Tech University has launched the Institute for One Health Innovation (IOHI).

As a top tier Carnegie research university located in a semi-arid climate and surrounded by rural communities, no place is better-equipped with the researchers or better suited to study One Health than Texas Tech.

And if history is any indication of the impact the IOHI will have on the world, big things are on the horizon.

"Texas Tech researchers are leaders in areas like agriculture, food safety, metabolic health, infectious diseases, antimicrobial resistance and more," said Naïma Moustaïd-Moussa, director of the Institute for One Health Innovation. "IOHI brings together those researchers to

examine how these issues are impacted by the food we eat, the animals we interact with, and the ecosystem we all share. One Health is the only approach that will help us maximize the impact of our discoveries on all species to achieve optimal health for all."

Take for instance the impact that has been made over the last few years by the Biological Threat Research Laboratory at Texas Tech (BTRL).

Led by Steven Presley and Cynthia Reinoso Webb, the BTRL houses a biosafety level 3 (BSL-3) lab able to test for some of the most dangerous diseases in the world.



Photo courtesy of Texas Tech University

"We are a unique academic research and public health focused team with a genuine obligation to the local, regional and statewide communities that we serve, particularly during disease outbreaks and other threats to human and animal health," Presley explained.

As part of the Centers for Disease Control and Prevention (CDC) Laboratory Response Network – Biological, the lab at Texas Tech has been busy in recent years.

In 2020, when the COVID-19 pandemic hit and facilities to test for the disease were in short supply, the team under Presley and Reinoso Webb worked long hours to help process the tests. The team was called on to do Monkeypox testing in 2022.



The BTRL was called into action again by the CDC Laboratory Response Network in 2024. A farm worker who reported no contact with sick or dead birds, but who was in contact with dairy cattle, began showing symptoms and samples were collected by the regional health department to test for potential influenza A.

Their testing led to a publication in the New England Journal of Medicine, which publicly confirmed the first case of highly pathogenic avian influenza (HPAI) transmitted from a mammal (dairy cow) to a human.

"It's a huge thing that the virus has jumped from birds to mammals, dairy cows in this case, and then to humans," Presley said at the time. "That's why this paper in the New England Journal of Medicine is, I think, very significant. It's going to lay the foundation, I believe, for a lot of research in the future of how the virus is evolving."

Even with the evolving nature of HPAI, which has impacted economics of agriculture across the country, the team at Texas Tech has been called on to help with other urgent needs in the last year. Notably, they recently started testing to help with the deadly measles outbreak hitting Texas.



In each instance, the BTRL and Texas Tech responded to the needs of the community, thanks to the vigilance and dedication it takes to keep a BSL-3 lab up and running.

"There's so much continued maintenance and competency tests that may not be used for years," Reinoso Webb said. "But when they are needed, we are prepared and competent to run the test."

Presley and Reinoso Webb are just two of the many researchers at Texas Tech and across the Texas Tech University System already doing outstanding work in One Health.



From 2018-2023, Texas Tech University and Texas Tech University Health Sciences Center have produced 421 joint publications and 61 joint grant awards. Research funding includes cancer, addiction studies, pain therapy, aging-related diseases, autoimmune disorders, genetics, drug interactions, speech therapy and medical devices and a U.S. Department of Agriculture training grant in food, nutrition and agriculture.

The IOHI will bring together even more experts and resources across multiple campuses and disciplines to address the growing health care needs of the region, state and nation.