

Vet scientists' work on diagnostic, intervention tools for H1N1 helps human health lab, too

August 18 2009

If some day you are tested for the H1N1 virus without the painful prick of a needle, thank a pig -- and a team of Kansas State University researchers and their collaborators who are connecting animal and human health.

K-State professors Dick Hesse and Bob Rowland -- along with a research partner at Iowa State University -- are collaborating with Susan Wong, a scientist at the New York State Department of Health, on diagnostic and intervention tools for the [H1N1](#) virus.

While Wong is working on the human health side, the other scientists are focused on aspects of the research that will benefit animal health, including the health of swine in Kansas. Hesse is an associate professor of diagnostic medicine and pathobiology and head of diagnostic virology in the K-State Veterinary Diagnostic Laboratory. Rowland is a K-State professor of diagnostic medicine and pathobiology. Their Iowa State collaborator, Jeffrey Zimmerman, is a professor of veterinary diagnostic and production animal medicine.

One of the ways these scientists' work intersects is in a method for identifying the H1N1 virus. At K-State, Rowland and Hesse are working on a diagnostic method for pigs that analyzes saliva rather than blood. Zimmerman developed a less invasive collection procedure for the pigs: The animals chew on a rope, from which saliva is collected.

"Just as we are developing noninvasive techniques to collect samples from animals, it provides the New York State health lab the opportunity to develop the same oral fluids technique for humans," Rowland said. "Using a saliva swab rather than a needle to draw blood works especially well for kids."

The K-State researchers also contribute to the human health side by providing Wong's lab with antigen targets and by validating test systems.

"We bring a lot to the table, but at the same time they bring a lot to us," Rowland said. "One of the nice things is we can study the virus in pigs and get the type of reagents and samples from which to develop the tests. You can't do that with people."

Such benefits to human health stem from K-State's efforts to help swine producers across Kansas. The K-Staters are developing multiplex system tests to profile swine herds and determine what's circulating, what the antibody response is, and with that knowledge help producers make sound management decisions.

"This standardized diagnostic testing is to help the citizens of Kansas," Hesse said. "We herd profile on the veterinary end of things, and you can consider the human population a herd you can profile as well."

Rowland said that some of the benefits of their testing system are that it provides more information, better accuracy and should be available to producers at a less expensive price.

"This is the next generation of diagnostic tests that will replace a lot of things we've done in the past," he said. "The bottom line is these producers have to be able to afford the tests we provide them," he said.

Healthy pigs mean successful producers, Hesse said.

"At the end of the day, these diagnostics help maintain the healthy agriculture economy of the state," Hesse said.

After diagnosing diseases in herds, the researchers said that their next goals are to help producers with surveillance and prevention.

"The same reagents we use for diagnostics are often the ones we use for vaccines, so we're not only looking at diagnosing something, we're always looking at the next stage," Rowland said.

Gary Anderson, who directs the K-State Veterinary Diagnostic Laboratory, said that what sets apart Hesse, Rowland and many of their colleagues at K-State is their work at the bench nearly always translates into benefits for the field.

"These are hard-core scientists who are really interested in meeting real-world needs and taking the research from the bench to the field, and the K-State Veterinary Diagnostic Lab is doing that every single day by helping people in our state and nation."

The importance of the K-State researchers' efforts is magnified with diseases like the flu that humans share with other animals.

"This really gets back to the concept of one health, one medicine," Rowland said. "Veterinary and human medicine have a lot of interaction, especially on the infectious disease side, where we look at infectious agents that may circulate in both human and animal populations."

Source: Kansas State University ([news](#) : [web](#))

Citation: Vet scientists' work on diagnostic, intervention tools for H1N1 helps human health lab,

too (2009, August 18) retrieved 24 April 2024 from <https://medicalxpress.com/news/2009-08-vet-scientists-diagnostic-intervention-tools.html>

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