K-State researchers inform Sen. Moran on Zika research

By **Jason Tidd** - Aug 24, 2016

Sen. Jerry Moran, R-Kan., looks at a model mosquito with Stephen Higgs, director of the Biosecurity Research Institute and associate vice president for research at K-State, during a tour of the Biosecurity Research Institution on Aug. 23, 2016. (Mason Swenson | The Collegian)

Zika researchers at Kansas State shared their knowledge of the virus with a U.S. senator Tuesday.

Sen. Jerry Moran, R-Kan., toured the Biosecurity Research Institute at K-State and spoke with Stephen Higgs, director of the Biosecurity Research Institute and associate vice president for research at K-State, about how mosquitos spread Zika.

The Biosecurity Research Institute is wholly owned and operated by the university and is not affiliated with the federal government's National Bio and Agro-Defense Facility, which is under construction on K-State's campus.

The institute is unique in its research capabilities, Higgs said. The facility has a food safety and security area, an area for plant infectious diseases, one for livestock, another for insects and yet another devoted to level three pathogens.

“There are other institutes — many government-run institutes — around the world that do some of this, but none of them do all of this,” Higgs said.

Higgs said the institute had a strain of Zika in its laboratories before the outbreaks, but not the correct type, and no one was conducting research with it. Instead, Zika was “ignored.”

“It only caused 14 cases between 1946 and 2007, so nobody was interested in it,” Higgs said. “But now of course there’s hundreds and hundreds of thousands of cases.”

Once the virus became a greater threat, the institute contacted the Centers for Disease Control and Prevention, which provided the virus free of charge, and within a week the institute was growing Zika in the laboratory.

Zika Research at K-State

While most Zika research across the world has been focused on finding a vaccine, other areas need attention, too, Higgs said.

“There is a lot we really don’t understand about the virus,” Higgs said.

One of those aspects is the range of mosquitos that transmit Zika.

Across the world, there are over 3,500 species of mosquitos, according to the CDC. Higgs said about 174 of them are found in the U.S., and 84 of those can be found in Kansas.

K-State researchers tried to determine which mosquitoes could transmit Zika, and found only two.

“We could not infect those mosquitoes, and we’re pretty good at infecting mosquitoes,” Higgs said. “So if we couldn’t infect them, our interpretation was they weren’t susceptible.”

That becomes important for mosquito control. If done incorrectly, resources are wasted, Higgs said.

The ones that transmit Zika are some of the most difficult mosquitoes to control, Higgs said, because they live indoors and close to people. This makes typical mosquito spray less effective.

One encouraging aspect of Zika, Higgs said, is Zika does not exist in wildlife, as opposed to the West Nile virus, which does live in wildlife.

Moran said eradication of mosquitoes to prevent the spread of Zika would be unsuccessful, based off Higgs’ information. Moran also said some politicians oppose the spraying of mosquitos because of environmental reasons.

“It always seemed to me that we had been told a vaccine is a year or two away (and) the best course of action is to try and kill the mosquito,” Moran said. “But what I’m learning from (Higgs) today is the chances of killing the mosquito is pretty minimal.”

Higgs said DDT was successful in mosquito eradication, but had a high cost, both fiscally and environmentally. Once DDT use was suspended, the mosquito populations returned.

Mosquito eradication should not be a goal, Higgs said.

“In one of these biting insects there’s the most powerful vasodilator known to man,” Higgs said.

That means some of the compounds and proteins found in mosquitoes may have pharmaceutical uses, Higgs said.

He said it is best to either have a vaccination or to avoid being bitten, not to control mosquito populations. He also said people should eliminate breeding sources for mosquitos.

Moran said he toured the institute in part because he wanted to be more informed on Zika research.

“I wanted to get additional information so that when I return to the Senate floor and have conversations with my colleagues, I can speak with greater authority and more knowledge based on what I learned from scientists and not politicians,” Moran said.

Politics and Funding

So far, all of the funding for Zika research at K-State has come from the College of Veterinary Medicine, Higgs said.

“We felt that this research was so important that we had to start it even before we had extramural funding,” Higgs said.

There has been federal funding for Zika research through the National Institutes of Health, but none of those dollars have found their way to K-State.

Most of that money has been directed toward vaccine research, Higgs said.

Moran, who serves on the Senate Appropriations Committee, said he wants to allocate funding for more Zika research when the Legislature reconvenes in September.

Passing legislation to do so has proved difficult, in part due to politics, Moran said.

At issue are both the price tag attached to the legislation as well as where the money should come from. Moran said the money should come from somewhere else in the budget so funding for Zika research does not add to the national debt.

He added that funding for Zika research should not be a victim of partisan politics.

“We’ve got to move to the middle of the ring and resolve our differences and get this accomplished,” Moran said. “I think the health and well-being of mothers and their babies is more than a sufficient call for us to set aside any kind of Republican-Democrat differences.”

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