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Successful bird flu vaccine also proves effectiveness of nasal delivery

The University of Maryland School of Medicine. (Karl Merton Ferron/Staff)

By Karl Hille

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A new vaccine to protect dairy and poultry workers from bird flu does not require a needle and works against multiple strains of the H5N1 virus, researchers at the University of Maryland Center for Vaccine Development and Global Health said. Protection could be a quick squirt away.

“An intranasal vaccine is appealing because of the ease of delivery,” said Dr. Franklin Toapanta, a co-lead of the study, which was published Nov. 6. “The study also revealed that the vaccine is indeed protective against the particular strain included in the vaccine, but it also provides protection against other strains of bird flu.”

For the study, they used an H5N1 vaccine with an adjuvant — an extra substance that increases immune response — produced by Michigan-based Blue Willow Biologics. Some patients received a placebo or a dose of the vaccine without the adjuvant. Six months later, all patients received a booster shot, and those in the adjuvant group showed a more immediate immune response compared to the other groups.

Previously, intranasal vaccines appeared to perform poorly, said co-lead Dr. Meagan Deming, because standard blood antibody tests did not reveal an immune response centered in the sinuses and lungs, where people first encounter most flu viruses. The 6-month booster shot and subsequent blood test revealed a strong priming mechanism and suggest new kinds of tests are needed to assess vaccines that are not injected into muscle tissue.

“It revealed the priming we might have seen with prior intranasal vaccines,” Deming said. “We just didn’t know how to look for it.”

Another benefit of intranasal vaccines is that they are delivered right where infections begin, she said.

“Our hope is that if you get a good intranasal dose, it could be a transmission blocker,” Deming said. “If you have a strong immune response in the nose, you could potentially stop it there.”

Tapoanta and Deming also teach at the University of Maryland School of Medicine, and their study was published in the journal Nature Communications. The Center for Vaccine Development and Global Health focuses on diseases with global reach.

While bird flu has not spread widely among people, evidence exists that it is growing in poultry and dairy farm animal populations, especially, and it can spread to those who work in those industries, Dr. David Blythe, director of Maryland’s Infectious Disease, Epidemiology and Outbreak Response Bureau, said in a statement.

“Nationally, H5N1 Bird Flu activity in poultry is increasing, and in the last month confirmations have been made in 30 commercial flocks and 30 backyard flocks, with 1.61 million birds affected in the outbreaks,” Blythe wrote. “However, the current risk to the general public remains low and the H5N1 virus has not been identified in … Maryland in the last 30 days. There have been no human cases of H5N1 Bird Flu identified in Maryland to date.”

Have a news tip? Contact Karl Hille at 443-900-7891 or khille@baltsun.com.