Third US farm worker infected with highly pathogenic bird flu virus

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The Centers for Disease Control and Prevention (CDC) announced May 30 that a third person, a Michigan dairy farm worker, was diagnosed with the H5N1 bird flu virus that has been spreading among US dairy herds over the last six to seven months. As of May 31, 2024, 69 herds have been impacted across nine states, according to the USDA. Health authorities are also monitoring 350 people who have been exposed, but only 40 farm workers have consented to testing.

The recently infected individual worked closely with the sickened cows. It was at a different farm from the previous case of H5N1 infection in Michigan, so the investigator attempted to assure the public that the virus was not spreading between people but through separate direct contacts with infected animals.

However, the symptoms exhibited by the most recent infection included respiratory ailments such as a sore throat and cough, which were not present in the first case in Texas and the second case in Michigan. These had only presented with conjunctivitis, also known as pink eye, inflammation of the transparent membranes that line the eyelid and eyeball. Still, the fact that the Texas individual also had a positive nasal swab for H5N1 indicates the respiratory passages remain at risk, as has been confirmed by the recent finding.

Dr. Rick Bright, a virologist and the former head of the Biomedical Advanced Research and Development Authority, said in an opinion piece published in the *New York Times*, "The virus is adapting in predictable ways that increase its risk to humans, reflecting our failure to contain it early on. The solutions to this brewing crisis—such as comprehensive testing—have been there all along, and they're becoming only more important. If we keep ignoring the warning signs, we have only ourselves to blame."

The impetus for this stern warning stems from the continued pernicious laissez-faire attitude that characterizes the federal response to the growing threat posed by H5N1 bird flu. Serological studies to map out the extent of the outbreak both among humans and animal species are completely lacking.

Bright, who opposed the Trump administration's handling of the COVID pandemic, had made these same highly critical observations early on. Precisely because public health had been relegated to the back of the queue in terms of government efforts, the US has seen one of the highest death tolls among leading countries despite its unprecedented access to vaccinations. Many other countries that adopted policies of mass testing and quarantining to drive infections to zero have seen very low fatalities in their population by comparison.

Although the H5N1 virus was spreading among herds since December 2023, it was only in late March that the outbreak was detected. Yet the USDA has been slow to share viral sequences on public databases for researchers to analyze.

Testing and enforcing the appropriate use of PPEs among farm workers continues to lag severely. Given their proximity to these animals, they are not only at risk of infection, but function as a ready host for these viruses to acquire the right combination of genetic mutations to propel them into human populations.

As Bright noted, "Undetected cases of H5N1 means that infected people may continue to spread the virus unknowingly. This is especially dangerous in farming communities where close contact with animals and other workers is common. Each missed case is a potential link in a chain of transmission that could lead to a wider outbreak."

Dr. Seema Lakdawala, an infectious disease specialist at Emory University, echoed Bright's concerns when she told CNN, "Given the high magnitude of interactions between people and dairy cows as well as with contaminated milking equipment, it is unsurprising that there are more human infections [infected cows have high viral concentrations in their milk]. Every time the virus is able to replicate in a person, there is the potential for the virus to adapt to humans and gain molecular features for replication in the respiratory tract and to spread person-to-person."

These developments come on the heels of a recent May 24 report by the CDC that the infection in the first Michigan

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farm worker revealed genetic changes that were not present in the Texas animal handler, underscoring how rapidly these viruses can shift their genetic makeup to adapt to new hosts.

The CDC wrote, “These data indicate viruses detected in both cows and the two human cases maintain primarily avian genetic characteristics and lack changes that would make them better adapted to infect or transmit between humans. The genome of the human virus from Michigan did not have the PB2 E627K change detected in the virus from the Texas case but had one notable change (PB2 M631L) compared to the Texas case that is known to be associated with viral adaptation to mammalian hosts, and *which has been detected in 99 percent of dairy cow sequences but only sporadically in birds* [emphasis added]. This change has been identified as resulting in enhancement of virus replication and disease severity in mice during studies with avian influenza H10N7 viruses.”

Given these developments, it bears citing the important work published in *Science* in 2012 by famed Dutch virologist Ron Fouchier and colleagues that led to the gain-of-function controversies and unprecedented pauses on funding such research in the United States. At the time, H5N1 had spread extensively across the globe, devastating the poultry industry in numerous countries. Also, more than 600 people had been infected since 2003, with a case fatality ratio above 60 percent. Although no person-to-person route of transmission had been detected, these concerns remained foremost in the minds of these researchers.

The authors wrote, “The viruses that caused the major pandemics of the past century emerged upon reassortment (that is, genetic mixing) of animal and human influenza viruses. However, given that viruses from only four pandemics are available for analyses, we cannot exclude the possibility that a future pandemic may be triggered by a wholly avian virus without the requirement of reassortment.”

After they had engineered bird flu strains that were contagious in ferrets, Fouchier said that approximately 10 serial passages of the virus from ferret to ferret led to the accumulation of as few as five mutations that allowed infected animals to transmit through the air to previously uninfected ferrets. He said at the time, “We assume also in humans it would only take a low number of transmission events for these mutations to accumulate.”

A prescient report published in October 2019 in the *New York Times* bemoaned the ending of a critical federally funded work called Predict whose aim was to identify dangerous animal viruses that could someday lead to outbreaks among humans. The United Nations had estimated that a new animal disease that could also affect people was being discovered every four months. The *Times* wrote then:

> Ending the program, experts fear, will leave the world more vulnerable to lethal pathogens like Ebola and MERS that emerge from unexpected places, such as bat-filled trees, gorilla carcasses, and camel barns. The program, known as Predict and run by the United States Agency for International Development, was inspired by the 2005 H5N1 bird flu scare. Launched 10 years ago, the project has cost about $207 million. The initiative has collected over 140,000 biological samples from animals and found over 1,000 new viruses, including a new strain of Ebola. Predict also trained about 5,000 people in 30 African and Asian countries, and has built or strengthened 60 medical research laboratories, mostly in poor countries.

However, precisely when a comprehensive international effort was required to stave off a potential outbreak with a novel pathogen that was predictable and preventable, the COVID pandemic was ushered in, producing what the *World Socialist Web Site* has called a trigger event in history.

Four years later, while the US government is finalizing a lucrative deal with Moderna to develop an mRNA pandemic bird flu vaccine for its stockpiles, the World Health Organization failed to deliver a pandemic preparedness draft accord in time to the 77th World Health Assembly, mainly because of the US political establishment’s objections to the stated agreement.

In a letter to President Joe Biden, a Republican-drafted critique claimed that the proposed WHO amendments “would substantially increase the WHO’s health emergency powers and constitute intolerable infringement upon US sovereignty.”

They also warned that the proposal “shredded intellectual property rights.” In light of the callous vaccine nationalism that was the hallmark of the global response to COVID, under the complete breakdown of all international norms, these life-saving treatments are being weaponized against the population of the planet.

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