Policy Backgrounder

Bird Flu: A New Strategy to Mitigate the Spread of H5N1

This Backgrounder updates CED's ***Policy Backgrounder: Monitoring Possible Public Health Threats: Bird Flu: H5N1 Spreads to Pigs***, which discussed public health concerns from the transmission of H5N1 to pigs; swine are viral "mixing vessels," capable of being infected with both bird flu and human flu viruses. In recent days, the Administration has signaled a shift in the national response to bird flu from the mass culling of infected flocks to an approach centered on biosecurity and medication.

Key Insights

- A dozen large grade A eggs cost a record-high average of $4.95 in January 2025, up from $2.52 in January last year. A total of 159,307,978 poultry have been affected since the beginning of the outbreak.
- A recent CDC publication revealed that viral spillovers from dairy cattle into humans have gone undetected, including in states where dairy herds have not tested positive. The finding underscores the difficulty of detecting subclinical human infections.
- The Administration last week issued a conditional license for an avian flu vaccine from manufacturer Zoetis for use in chickens.
- A new H5N1 strain recently detected in Nevada dairy cattle showed a key mutation that may make it easier to replicate inside mammalian cells. However, there remains no evidence that H5N1 virus can spread human-to-human.
- USDA will soon release an official plan on bird flu; it is unclear whether the agency will adopt a strategy of stricter viral surveillance and testing measures.

Cow-To-Human Transmissions Go Largely Undetected

H5N1 bird flu, which the Centers for Disease Control and Prevention (CDC) describes as "widespread," has been devastating wild birds worldwide and causing outbreaks in poultry and US dairy cows since January 2022. Highly Pathogenic Avian Influenza (HPAI) viruses cause severe disease in infected poultry, with mortality rates as high as 90 to 100%. During outbreaks, farmers are supposed to report the incident to U.S. Department of Agriculture (USDA) officials; in response, USDA officials visit the farm to cull the entire flock. A total of 159,307,978 poultry have been affected since the beginning of the outbreak, one of several factors that has led to an increase in the price of eggs. A dozen large grade A eggs cost a record-high average of $4.95 in January 2025, up from $2.52 in January last year. Higher consumer demand as well as higher feed, fuel, and labor costs are other major factors contributing to higher costs for consumers.

Transmission of bird flu to dairy cows continues to be widespread since the first reported case in March 2024, with 972 dairy herds having been affected in 17 states as of February 16. The majority of cases (747) have been reported in California, with the most recent case reported on February 14. In partnership with state veterinarians, USDA in December implemented a voluntary milk-testing program in order to understand the virus' spread better, support enhanced biosecurity measures to decrease transmission to other livestock, and prevent spread to farmworkers. However, three of the US' top milk-producing states – Texas, Wisconsin, and Idaho – are not participating in the testing program. Richard Webby, an animal influenza expert at St. Jude Children's Research Hospital, said testing is a critical tool for helping disease specialists monitor how the virus is evolving, especially in ways that could make it easier to transmit from person to person.

The CDC has confirmed 68 human cases of the virus, with one death reported, since last year. The majority of cases resulted from exposure to infected dairy herds. Last week, the CDC released its first publication under the new Administration, which examined the prevalence of H5N1 among bovine veterinary practitioners. The data found that viral spillovers from dairy cattle into humans have gone undetected, including in states where dairy herds have not tested positive. The study serologically tested 150 bovine veterinary practitioners for H5N1 antibodies and found that three participants had antibodies, suggesting recent infection. However, none of the practitioners with positive serology results reported respiratory or flu-like symptoms.

The study's findings underscore the difficulty of detecting human infections. "If the circulating H5 viruses become more transmissible between humans, we are not going to be able to control transmission as the viruses will spread rapidly and often subclinically," says Gregory Gray, an infectious disease epidemiologist at the University of Texas Medical Branch in Galveston. The samples from the study were collected in September. It is likely that undetected cases are now far more widespread. The study concludes that "[c]ontinued systemic surveillance of livestock and milk could aid in appropriate occupational hazard assessment."

Administration Pivots Bird Flu Response

USDA Secretary Brooke Rollins took seven key actions on February 14, her first day in office, one of which was reviewing options for a "comprehensive strategy to combat Avian flu and lower the price of eggs." Administration officials have spoken extensively over the past several days about a possible plan that would completely transform the national response to fighting the spread of the virus, moving from the mass culling of infected flocks to a strategy centered on "biosecurity and medication." The World Health Organization for Animal Health (WOAH) recommends culling as a "critical strategy" for controlling HPAI (highly pathogenic avian influenza) outbreaks in poultry, in line with the USDA's current strategy. There are currently no specific treatments for HPAI.

Several sources told Reuters that the early weeks of the new Administration disrupted the response to bird flu, withholding reports and cancelling Congressional briefings and meetings with state officials. The CDC withheld two weekly reports, one on bird flu transmission and another on surveillance. For decades, these weekly reports have been a way for the CDC to communicate important information to local health officials and clinicians so they can properly treat and protect patients, said Arthur Reingold, a professor of Epidemiology at the University of California Berkely. Moreover, the Administration's decision to withdraw from the WHO has hampered the US' ability to track outbreaks and strains of the virus worldwide.

USDA last week issued a conditional license for an avian flu vaccine from manufacturer Zoetis for use in chickens. The conditional license was granted on "the demonstration of safety, purity, and reasonable expectation of efficacy based on serology data." Zoetis is an experienced avian flu vaccine developer, having received in 2016 a conditional license for its H5N1 vaccine and a contract award for the USDA's National Veterinary Stockpile; the same vaccine was used in 2023 by the US Fish and Wildlife Service to protect California condors.

Concerning Viral Mutation Detected

A second strain of H5N1 was detected in dairy cattle that had previously not been seen in cows. The detection of the D1.1 strain of the virus, which was confirmed by USDA on January 31, was the result of state tracing and investigations following an initial detection under the USDA's National Milk Testing Strategy in Nevada. H5N1 clade 2.3.4.4b, genotype D1.1 had been detected in more than a dozen people exposed to infected poultry and was linked to the first US death caused by bird flu as well as a severe illness in Canada, resulting in long-term hospitalization of a teenage girl. Until now, all documented H5N1 cases affecting dairy herds have been caused by the clade 2.3.4.4b, genotype B3.13 strain of the virus. The discovery of the D1.1 strain in cattle means that the virus has spread from poultry to cattle at least two times, raising questions about wider spread that may be going undetected.

The D1.1 strain of the virus detected in Nevada dairy cattle showed a key mutation that may make it easier to replicate inside of mammalian cells. "We need to now consider the possibility that cows are more susceptible to these viruses than we initially thought," said evolutionary

biologist Louise Moncla. However, there remains no evidence that H5N1 virus can spread human-to-human, and the CDC continues to deem the risk to most people low.

An Australian girl tested positive for a rare H5N1 strain upon return from travel to India. The previously healthy 2.5-year-old girl, who was infected with H5N1 clade 2.3.2.1a which consistently circulates in South Asia, was admitted to the ICU with respiratory failure requiring mechanical ventilation. Further analysis of the virus found it to be a reassortment virus consisting of gene segments from clade 2.3.2.1a, clade 2.3.4.4b, and low pathogenicity avian influenza viruses. HPAI clade 2.3.4.4b viruses circulate worldwide and cause infection in birds and mammals. The case study underscores the significant lack of H5N1 surveillance in India, with only two H5 sequences reported in the country since 2020, compared to 314 recorded in Bangladesh during the same period.

Scientists at the MRC-University of Glasgow Center for Virus Research along with an international team of scientists found that horses have been infected with H5N1 in Asia and that infections are going undetected. The study, which used H5N1 antibody tests in horse herds in two regions of Mongolia, revealed that horses had been infected with the virus over several years. Researchers pointed to the risk of horses becoming co-infected with their own influenza strain, known as equine influenza, and avian influenza. “This raises the risk of generating novel viruses with unknown pathogenicity, potentially posing a threat not only to horses but to other mammals, including humans," said Professor Pablo Murcia, lead author of the study from the MRC-University of Glasgow Center for Virus Research.

A recent “major disease breakout in a highly concentrated poultry area of Northern Ireland” resulted in the culling of 64,000 birds. If avian flu is confirmed, it would be Northern Ireland’s first outbreak on a commercial farm since December 2022. As a precautionary measure, the Department of Agriculture, Environment and Rural Affairs (DAERA) announced that all kept birds and poultry must be kept indoors to mitigate potential spread of the virus. A similar order has been issued in the Republic of Ireland.

Conclusion

The Administration’s potential pivot from a mitigation strategy of mass culling of birds to one focused on biosecurity and medication demonstrates a new phase of the H5N1 outbreak. In the coming days when USDA releases its official plan, it will be revealed whether the agency will adopt a strategy of stricter viral surveillance and testing measures, or whether it will seek to avoid additional costly regulation and oversight. “We are looking at every possible scenario to ensure that we are doing everything we can in a safe, secure manner but also to ensure that Americans have the food that they need,” said USDA Secretary Brooke Rollins.

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