Scientific Bulletin of the Academy of Medical Sciences

Number 108/ 12 July 2024

# COLORADO STATE OFFICIALS INVESTIGATING H5N1 CATTLE OUTBREAKS. USDA CONFIRMS SURGE OF MAMMALS INFECTIONS

Officials in Colorado (the latest state facing H5N1 **avian flu** in dairy cattle) provided updates on investigations and measures to track the spread of H5N1as the virus source remains unclear.

In other updates, the United States Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) reported several cases in two other states involving **mammals**, and researchers have published a new finding on the infectivity of a strain that has infected Spanish **minks**.

On April 26, the USDA confirmed the first detection in a herd in northeastern Colorado, the 9th affected state. Subsequently, the state veterinary office received notice on April 22 of a highly pathogenic avian influenza-like illness in cattle. Samples sent to the Colorado State University Veterinary Diagnostic Laboratory tested positive on April 24 and were confirmed by the USDA National Veterinary Services Laboratory the following day.

On May 1, the Colorado Agricultural Commission and the Commissioner of Agriculture urgently approved regulations to limit viral spread. The state has 106 dairy facilities and approximately 200,000 **dairy cattle**.

Researchers are still evaluating how cows were exposed to the virus, and whole genome sequencing will aid in understanding the infections. Furthermore, farmers in the state have been helpful, particularly in their response that halted further spread.

At present, there are still numerous unknowns, such as the incubation period duration in cattle, transmission mechanism, viral clearance in mammals, and the risk of H5N1 among non-lactating cattle or other animal species.

The overall risk to humans remains low and depends on exposure. Approximately 70 agricultural workers in Colorado have been monitored without presenting symptoms.

Regarding wastewater monitoring, there has been no general increase in flu markers in recent weeks.

In other developments, APHIS reported additional detections in other mammals. These include five **red foxes** whose samples were collected on April 24 from Ionia County, Michigan, an area where H5N1 virus was isolated in dairy cattle for the first time.

Additionally, the virus was found in two samples collected on April 21 and 22 from a pair of opossums in Ionia. APHIS also reported positive samples from a red fox in Onondaga, New York.

Researchers are evaluating the previous strain's infectivity in pigs, as they are highly sensitive to the H5N1 avian flu virus clade 2.3.4.4b that affected mink farms in Spain in 2022.

The virus is different from genotype B3.13 currently spreading in US dairy cattle but has raised concerns due to clear evidence of transmission from mink to mink.

Another cause of concern is that the virus is becoming increasingly adapted to mammals. This premise was demonstrated through experimental infection of pigs with mink virus. Pigs developed **pneumonia** but shed limited virus quantities and did not transmit the virus to other pigs through contact, with sequencing revealing a low frequency of mutations.

The transmission of viruses between different animal species underscores the importance of implementing public health policies focused on "One Health" and viral sequencing.

***Adapted after Lisa Schnirring, 8 May 2024***