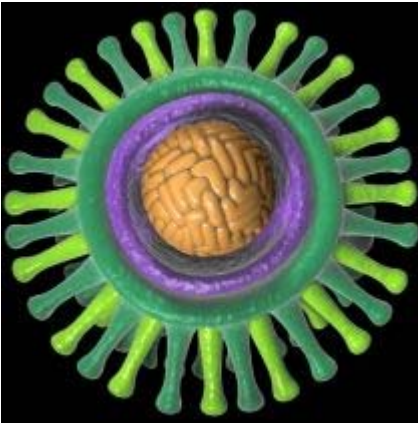


CSU receives \$2.6 million from Centers For Disease Control to study avian flu transmission between birds, humans



Bird flu H5N1 virus anatomy.

Researchers in Colorado State University's College of Veterinary Medicine and Biomedical Sciences recently were awarded \$2.6 million from the Centers for Disease Control to study how interactions between humans and birds may lead to more widespread transmission of avian influenza.

The three-year study, with partners from organizations including the University of Colorado Health Sciences Center, focuses on Western states where H5N1 avian influenza has not been detected and in central Indonesia where the virus has been detected in both birds and humans. The researchers will track how birds enter Western states and how humans interact with them in an effort to strengthen current efforts to monitor for and prevent an outbreak of the virus in poultry and humans in this region.

Interaction between infected human and infected birds

In addition, researchers will study how infected humans interacted with infected birds in Indonesia and study the impacts that substandard vaccinations given to birds in that area may contribute to elevated risk to humans.

"It is abundantly clear that we need to better understand avian flu in humans and animals, as well as the interactions among these two groups in order to devise and implement effective prevention and control strategies," said Richard A. Bowen, principal investigator on the grant and a professor of biomedical sciences at Colorado State. "It is also critical to understand how the differences in ecological areas may affect these interactions."

Backyard flocks common in Western U.S.

Small, non-commercial or semi-commercial flocks of poultry kept by individuals in rural and urban settings, often called backyard flocks, are numerous in Western United States. However, these

flocks are poorly monitored for health. In fact, the number and location of these flocks is unknown, but hundreds likely exist in Colorado alone, according to agricultural officials. Scientists believe that these birds represent the most significant interface between humans and avians that could carry H5N1, such as chickens and ducks.

The people who feed and care for these flocks would come into close contact with avian influenza if a flock became infected, greatly increasing the risk of transmission of the virus to these humans. Most backyard flock owners don't take simple biosecurity measures to protect themselves and their birds from diseases, such as wearing gloves while caring for the flock, according to agricultural officials. In addition, birds within these flocks are often transported around the region, but little is known about these transportation patterns. Infected birds could easily spread the disease from flock to flock during movement.

Similar flocks exist in Indonesia, where they also are poorly monitored.

Track potential risks and spread of disease if outbreak occurs

By learning more about these flocks, the researchers hope to help officials better monitor the health of the birds, track potential risks, develop a system to track the spread of the disease if an outbreak occurs and provide education to flock owners about biosecurity and avian influenza.

The study also will establish a system to trace infected humans and their associated poultry in Indonesia, providing scientists with important clues. The information will help scientists understand specific interactions between humans and poultry when the virus is transmitted and will help to identify genetic risk factors in humans.

In addition, researchers involved in the project believe that the viruses can still be spread in Indonesia by birds that have been vaccinated against avian flu. Inferior vaccines may have produced partially immune poultry that may help the virus to mutate into a strain that is more efficient for avian-to-human transmission.

"In humans and animals, appropriate vaccination against influenza has been and remains the cornerstone of influenza prevention," said Bowen. "However, the Chinese Agriculture Minister has voiced concerns that poultry in Indonesia received vaccines that did not meet effective potency. The affects of these vaccines may cause animals to be partially immune and appear to be completely healthy while still spreading avian influenza to other animals. And, even more important, the continued circulation of the highly pathogenic H5N1 virus among these partially immune chickens may allow the virus to mutate into a strain that is more efficiently spread from birds to humans."

The first human case of H5N1 was detected in Indonesia in July 2005.

The study involves Colorado State University's Veterinary Diagnostic Laboratory, where all samples from Colorado poultry are tested for avian flu. Colorado State researchers are Kristy L. Pabilonia, Helle Bielefeldt-Ohmann, Gabriele A. Landolt and Hana Van Campen. Additional partners include Eric Simoes and James Ruttenber from the University of Colorado Health Sciences Center; Kathe E. Bjork from PriMetrics Inc.; Cissy B. Kartasmita from the Universitas Padjadjaran in Bandung, Indonesia; and Martin L. Hibberd from the Genome Institute of Singapore, where avian and human study samples from Indonesia will be tested for H5N1.

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