

## BIRD FLU IN HUMANS: OARDC IN NATIONAL EFFORT TO UNDERSTAND, PREVENT, CONTROL IT

Bird flu is now a threat to both poultry and people. Outbreaks already cost U.S. poultry producers millions of dollars a year (for example, \$130 million in Virginia in 2002; a \$3.3 billion industry is at stake in Ohio). Now one particular strain, a highly virulent one called H5N1, has spread from chickens to humans in Asia, resulting in more than 50 deaths since 2003, and is raising the specter of a global pandemic. Exactly how influenza viruses jump from one species to another remains unclear to scientists. Finding out is Mo Saif's mission.



An international expert on poultry diseases and the chair of OARDC's Food Animal Health Research Program, Saif is conducting a three-year study of swine and turkey influenza transmission. The goal is to pinpoint the mechanism that enables flu viruses to jump between species, whether pig to turkey or chicken to human. Saif's study is part of a larger, \$5 million U.S. Department of Agriculture-funded effort aimed at preventing and controlling bird flu. The project teams scientists and Extension specialists from 17 states. Also involved are Ohio State's Richard Slemons, an associate professor of veterinary preventive medicine and animal sciences, and Nathan Watermeier, technology program director and geospatial specialist with OSU Extension, who are studying influenza A viruses in waterfowl—ducks and geese—and whether such birds spread flu to domestic poultry.

"There's a lot of information available about influenza, but at the same time there are many things we don't know about it," said Saif, whose lab was the first to document the transmission of a swine influenza virus to turkeys in 1978. "We're trying to find the molecular basis that makes the virus move from one species to another. RNA (ribonucleic acid) viruses such as influenza can mutate very easily, which makes it even harder to know what they will do next."

Pigs and turkeys are "relevant biological models, as some of them can become natural hosts of influenza and the pattern of infection follows the one seen in humans," explained Daniel Pérez, national project leader and an assistant professor of veterinary medicine at the University of Maryland. Studies like Saif's, Pérez said, "will serve as a model to understand the mechanisms of infection of avian influenza in humans."



"Our saving grace is that so far the avian influenza virus doesn't transmit well between humans," Saif said. "The fear is that if the avian virus combines with one that is highly transmissible, we could be facing a pandemic. Interspecies transmission of influenza is nothing novel, but the transmission of highly pathogenic virus types to humans is new and is really worrying people."

**For more information on avian influenza, log on to the following web sites:**

**Centers for Disease Control and Prevention, "Avian Influenza (Bird Flu)," <http://www.cdc.gov/flu/avian>**

**World Health Organization, "Avian Influenza," [http://www.who.int/csr/disease/avian\\_influenza/en](http://www.who.int/csr/disease/avian_influenza/en)**

**Food Animal Health Research Program, OARDC, <http://www.oardc.ohio-state.edu/fahrp>**

