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Influenza exposure in United States feral swine populations.

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Abstract

Swine play an important role in the disease ecology of influenza. Having cellular receptors in common with birds and humans, swine provide opportunities for mixed infections and potential for genetic reassortment between avian, human, and porcine influenza. Feral swine populations are rapidly expanding in both numbers and range and are increasingly coming into contact with waterfowl, humans, and agricultural operations. In this study, over 875 feral swine were sampled from six states across the United States for serologic evidence of exposure to influenza. In Oklahoma, Florida, and Missouri, USA, no seropositive feral swine were detected. Seropositive swine were detected in California, Mississippi, and Texas, USA. Antibody prevalences in these states were 1% in Mississippi, 5% in California, and 14.4% in Texas. All seropositive swine were exposed to H3N2 subtype, the predominant subtype currently circulating in domestic swine. The only exceptions were in San Saba County, Texas, where of the 15 seropositive samples, four were positive for H1N1 and seven for both H1N1 and H3N2. In Texas, there was large geographical and temporal variation in antibody prevalence and no obvious connection to domestic swine operations. No evidence of exposure to avian influenza in feral swine was uncovered. From these results it is apparent that influenza in feral swine poses a risk primarily to swine production operations. However, because feral swine share habitat with waterfowl, prey on and scavenge dead and dying birds, are highly mobile, and are increasingly coming into contact with humans, the potential for these animals to become infected with avian or human influenza in addition to swine influenza is a distinct possibility.

Keywords:

Animals, Wild/virology

Antibodies, Viral/ blood

Disease Reservoirs/veterinary

Female

Humans

Influenza A Virus, H1N1 Subtype/ immunology

Influenza A Virus, H3N2 Subtype/ immunology

Male

Orthomyxoviridae Infections/epidemiology/transmission/ veterinary

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