

Taiwan scientists report first case of new bird flu virus in humans

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Scientists from Taiwan report on the world's first confirmed case of human infection with a wild avian influenza A H6N1 virus in *The Lancet Respiratory Medicine*.

"A genetic analysis of the H6N1 virus identified in a 20-year-old woman shows a virus that has evolved the ability to target a receptor called SA α -2,6 found in the human [upper respiratory tract](#), potentially enabling adaptation of the virus to [human cells](#) ", explains lead author Dr Ho-Sheng Wu from the Centres for Disease Control in Taiwan.

The woman from central Taiwan presented to a hospital with flu-like symptoms and shortness of breath in May 2013. She responded to treatment with oseltamivir (Tamiflu) and has since fully recovered.

Tests on throat-swab samples indicated an unclassified subtype of influenza A virus. Genome sequencing established that the virus was a novel avian-origin H6N1 virus that closely resembled chicken H6N1 viruses that have been circulating in Taiwan since 1972.

Importantly, the virus had a mutation (G228S) in the haemagglutinin—a binding protein on the surface of the virus that enables it to get into human cells and cause infection—that could increase its preference for human SA α -2,6 receptors in the upper airway and enable the virus to become more infectious to humans.

Further investigation revealed that the woman worked in a delicatessen,

had not been abroad for 3 months prior to infection, or been in close proximity to poultry or wild birds. The source of infection remains unknown.

Of 36 close contacts, six developed a fever or respiratory-tract infection, but none of the causative pathogens were identified, although H6N1 infections were ruled out. Additionally, no H6N1 virus was found in samples collected from two poultry breeding sites near the patient's home.

According to Dr Wu, "H6N1 is a low pathogenic virus commonly found in wild and domestic birds across many continents. Our findings suggest that a unique group of H6N1 viruses with the human adaption marker G228S have become endemic and predominant in poultry in Taiwan. As these viruses continue to evolve and accumulate changes, they increase the potential risk of human infection. Further investigations are needed to clarify the potential threat posed by this emerging virus."

Writing in a linked Comment, Marion Koopmans from the National Institute for Public Health and the Environment in the Netherlands says, "With the detection of a [virus](#) of subtype H6N1, the list of questions to address is a familiar one. Viruses with H6 subtype haemagglutinins are quite prevalent in wild birds and have often been identified in poultry, along with other influenza viruses, resulting in generation of an ever expanding diverse set of [influenza viruses](#) through genetic reassortment... what would it take for these [viruses](#) to evolve into a pandemic strain? And an overriding question is if it is time to review our approaches to influenza surveillance at the human–animal interface? We surely can do better than to have human beings as sentinels."

More information: [www.thelancet.com/journals/lan... \(13\)70221-2/abstract](http://www.thelancet.com/journals/lan... (13)70221-2/abstract)

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