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# Scientists identify second H7 strain of bird flu that could cause pandemic

Mark Henderson, Science Editor

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The H5N1 strain of bird flu that has killed 241 people is not the only one that could trigger a pandemic, according to research in America. A few H7 strains of the flu virus have started to evolve some of the traits they would need to infect people easily, scientists have discovered.

The findings, from a team led by Terrence Tumpey, of the US Centres for Disease Control and Prevention (CDC) in Atlanta, show that while there is no immediate indication that H7 flu is about to acquire potentially damaging mutations, it is critical that global surveillance and research covers this virus class as well as the more obvious H5N1, scientists said.

The H5N1 strain has been regarded as the most deadly strain since it appeared in Asia in 2003. Although it has a death rate of more than 60 per cent, it has not yet acquired the ability to move from person to person, which would be a prerequisite for a pandemic.

There has been only one case in which it is considered probable that the virus was transmitted from person to person, and analysis of the virus's genetic structure has not yet revealed mutations that would allow it to infect people more easily. It is generally caught from close contact with infected birds, in which it is endemic in some parts of the world, particularly in Asia.

The H7 family of flu viruses also primarily affects birds. A deadly version of the H7N7 strain hit poultry in the Netherlands in 2003, and a less severe form, H7N2, broke out in the UK last year. Between 2002 and 2004 several outbreaks of H7N3 and H7N2 have been reported.

In each of these incidents a few human cases of infection have been reported. One vet died during the Dutch outbreak and about 80 people suffered conjunctivitis, an eye infection that is not life-threatening.

The UK outbreak also led to cases of conjunctivitis and a few mild respiratory infections.

Dr Tumpey's analysis of a 2003 case in New York has shown, however, that the H7N2 virus responsible is capable of replicating in the respiratory tract of mammals. This quality is unusual among avian viruses, and indicates that it could possibly be transmissible from person to person.

A study with ferrets — a standard animal model of flu in humans — also revealed that this H7N2 strain could be passed from animal to animal.

This suggests that the virus could be acquiring an ability to bind to sugars found on the cells of the human windpipe. This happened during all three of the 20th-century flu pandemics, which occurred in 1918, 1957 and 1968. "These findings suggest that the H7 class of viruses are partially adapted to recognise the receptors that are preferred by the human influenza virus," Dr Tumpey said.

"The finding ... underscores the necessity for continued surveillance and study of these viruses as they continue to resemble viruses with pandemic potential."

Each of the three flu pandemics of the last century was caused by a humanised strain of flu. The Spanish Flu of 1918-19, which killed up to 40 million people, was caused by an H1N1 virus. The 1957-58 Asian Flu was caused by an H2N2 strain, and the 1968-69 Hong Kong Flu by an H3N2 strain.

## Plague proportions

- Flu strains are categorised according to two key proteins, called haemagglutinin (H) and neuraminidase (N)
- The strain currently endemic in birds in many parts of the world, particularly in Asia, is H5N1
- A first solid case of human-to-human transmission, between a father and son in China, was reported last month
- Other avian strains of flu that could prove threatening to people include the H7 family, the subject of the new research
- Defences are largely reliant on antiviral drugs, particularly Tamiflu. The UK has ordered sufficient courses to cover 30 million people
- The Government says that up to 750,000 people could die in a pandemic, though a figure of 150,000-375,000 is thought likelier

Source: Times Database

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