

# Confirmed cases of H7N9 bird flu drug resistance: study (Update)

28 May 2013, by Mariette Le Roux

Laboratory tests have revealed resistance in some H7N9 bird flu patients to the only available treatment, said virologists who unveiled "concerning" study results on Tuesday.

Three out of 14 patients monitored at a clinic in Shanghai had a genetically-mutated version of the virus that makes it drug resistant, a team of researchers in China wrote in the journal *The Lancet*.

Of the three, one developed drug resistance only after being medicated, "probably as a result of treatment with Tamiflu"—a widely-used antiviral drug, said a statement.

This gave rise to fears that treatment might actually cause resistance to the only available drugs.

"The apparent ease with which antiviral resistance emerges in A/H7N9 viruses is concerning," wrote the study authors—insisting that early treatment remained the best course of action.

These are the first clinically confirmed cases of H7N9 resistance.

On Monday, Chinese health authorities said no new human cases of the deadly H7N9 bird flu strain had been recorded for the second week in a row.

A total of 130 people have been infected and 37 died since the outbreak started in China in February.

The virus is believed to spread to humans from birds, but fears were that it would mutate into a form transmissible from human to human.

The results of a lab study published in the US journal *Science* last month showed the H7N9 strain can spread among mammals, specifically ferrets, and would do the same between humans under

certain conditions.

For the new study, researchers followed 14 H7N9 patients admitted to the Shanghai Public Health Clinical Centre between April 4 and 20.

All had been given antiviral treatment, either oseltamivir (Tamiflu) or peramivir, which caused virus levels in 11 patients to drop.

Tamiflu and peramivir belong to a class of antiviral drugs called neuraminidase inhibitors—the only known treatment for H7N9.

Three patients, however, had a "persistently high viral load" in spite of treatment and had to be placed on oxygenation life support machines, wrote the authors.

Two of them died.

The authors said that apart from throat swabs, they also found virus traces in the blood, faeces and urine of some patients, and urged further studies to determine whether it could spread in ways other than coughing or sneezing.

They also noted that two of the drug resistant patients had also been treated with corticosteroids, a drug that is also widely used in flu treatment.

The team said there should be further studies to determine whether corticosteroids may aid drug resistance to develop.

H7N9 causes severe pneumonia with a fever, cough and shortness of breath and is deadlier than the common, seasonal flu.

The World Health Organisation (WHO) had earlier said that the H7N9 virus would likely react to existing antivirals like Tamiflu.

The agency said work on a vaccine, which must be

strain specific, had started—but observers have said it would probably be too late in case of an epidemic.

Last week, the WHO's deputy head Keiji Fukuda said the world was not ready to deal with a major flu pandemic.

H7 influenza viruses comprise a group that normally circulate among birds, of which H7N9 forms a subgroup that had never been found in humans until the Chinese outbreak.

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