

# H7N9 CONTINUES SLOW SPREAD, ANIMAL RESERVOIR STILL UNCERTAIN

A steady, but slow and at least for now, not accelerating, spread of the new H7N9 bird flu virus continues. Although infection of poultry in markets in Shanghai has been confirmed and thousands of birds culled, ongoing work on the virus has yet to provide what appears to be a full description of how the virus spreads in animal hosts and gets transmitted to humans.

The latest figures from China put the death toll at 9 and the number of confirmed cases at 28 people infected. The question of whether the virus can be passed from one person to another is still under intense investigation, and two possible family clusters are being investigated. WHO spokesman Gregory Hartl was quoted by Xinhua:

"At this point, there is no evidence of sustained human to human transmission," he said, adding that there are some "suspected but not yet confirmed cases of perhaps very limited transmission between close family members."

"They are still being investigated," he said.

Hartl told Xinhua one of the suspected family clusters was in Shanghai, with three family members having similar symptoms and one of them being confirmed of H7N9.

The confirmed case died, so has another suspected family member, according to Hartl.

The other suspected family cluster, which included two family members with one of them being confirmed, was in

Jiangsu Province, he said.

Hartl said that even if the infection of H7N9 is confirmed in other family member, further investigations are still needed to make sure whether that's a human to human transmission between constant and close contacts or an infection with virus from the same environmental source.

That final point from Hartl illustrates the difficulties that scientists face in developing a full description of how the disease is transmitted. At the same time that we do not yet know fully which animals are the reservoir from which humans are infected, we are simultaneously trying to determine whether family members are passing the virus to one another. That question is complicated by the fact that because the family members live in close proximity to one another but by definition also are exposed to the same local environment, multiple family members could have been infected from the same animal source or one family member could have passed the disease to another.

Moving to the question of the animal host, the same Xinhua article that quotes Hartl also informs us that no pigs have been found to be infected with the virus. Recall that large numbers of pig carcasses had been disposed of in rivers in the same areas of China around the same time H7N9 emerged, so some scientists wondered whether the virus arose in pigs and caused those deaths. There were also observations of dead birds. Xinhua has new information on analysis of bird infections:

A preliminary analysis shows that H7N9 bird flu has not triggered an epidemic among poultry, according to a Tuesday report in the People's Daily that cited a veterinary expert.

Of the 738 samples collected from three live poultry markets in Shanghai, where

the first known human deaths of the disease were reported, only 20 samples contained H7N9 virus, including 10 from chickens, three from pigeons and seven from environmental samples, the report said.

It would be helpful to know more about how these tests were carried out, especially whether the virus-positive birds were in clusters coming from single suppliers at the markets or if more than one poultry producer had virus-positive birds among the ones they brought there. It also is not clear from this article what is meant by “environmental samples”. Were these samples from bird droppings that could have been either from market poultry or from wild birds in the area? Or does that mean that the samples were known to come from wild birds in the market area? Whatever the source of the environmental samples was, though, since they were a significant portion of the positive samples, that is an area that needs lots of attention as work continues.

Unlike the SARS outbreak in 2002, China is being praised by scientists and the World Health Organization for its open and rapid response to the outbreak. As with any new outbreak, access to accurate information is key. In that regard, it stands out as significant that the number of people China has now punished under charges of spreading inaccurate information about the outbreak, 10, is larger than the number of people known to have died from the virus, 9. The Reuters article notes, however, that Chinese online activists claim that they have pressured China into being more open about the outbreak.

In its update and advisory on the outbreak yesterday, WHO said:

WHO does not advise special screening at points of entry with regard to this event, nor does it recommend that any travel or trade restrictions be applied.

Vietnam is screening at airports in Ho Chi Minh City and Hanoi anyway:

As reported, HCMC's Tan Son Nhat Airport has used tele-thermometers to measure the body temperatures of all visitors to HCMC for detection of abnormality since last Saturday, April 6.

A similar precaution has also been carried out at Noi Bai International Airport in Hanoi, where two temperature scanners are currently in operation.

This newly emerging virus certainly is worthy of close monitoring, but at the present time does not look to me as though it is going to turn into a major outbreak without further evolution to become more rapidly transmitted to and among people. Since WHO is not recommending limits on travel or screening of travelers, it would appear that they do not expect the virus to turn into a significant global event.

*Postscript:* I owe a huge tip of the hat to commenter klynn, who has provided us with a steady stream of very useful links in the two previous H7N9 posts. The first link in this post comes from one of those comments and has a number of very informative graphics. The Vietnam link at the end of the post was from klynn as well.