WHO RISK ASSESSMENT

Human infections with avian influenza A(H7N9) virus

27 June 2014

Summary of surveillance and investigation findings

Human cases of avian influenza A(H7N9) virus infection to date

A total of 450 laboratory-confirmed cases of human infection with avian influenza A(H7N9) virus, including 165 deaths, have been reported to WHO: 435 cases by China National Health and Family Planning Commission, four cases by the Taipei Centers for Disease Control (Taipei CDC), ten cases by the Centre for Health Protection, China, Hong Kong SAR, and one case in a Chinese traveller, reported from Malaysia. Since June 2013 (second wave) until 27 June 2014, 317 cases were reported[1]. The age and sex distribution of cases was fairly similar in first and second wave. Overall, most cases have occurred in middle-aged and older men, a few in children and even fewer in teenagers and young adults. The median age is 58 years (first wave 62; second wave 57). Infections in men are more frequently reported than those in women. The case fatality rate among reported cases from both waves is 36% although this might change as some patients are still hospitalized in critical condition. As in the first wave, most of the human cases reported in the second wave have been considered severe, with the exception of children, who have been presenting with milder clinical symptoms.

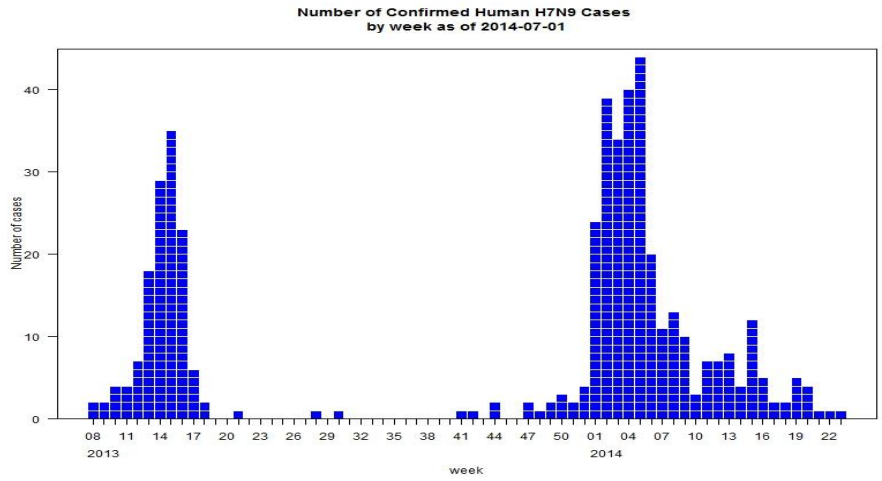

Fig 1: Laboratory-confirmed cases of human infection with avian influenza A(H7N9) virus by week of onset

Virus characteristics

No antigenic changes to the viruses characterised since the last update of 28 February have been noted. See also http://www.who.int/influenza/vaccines/virus/201402_h5h7h9h10_vaccinevirusupdate.pdf.

[1] For the analysis, the cases reported over summer are included in the second wave.

Source of human infection

Although much remains unknown about this virus, such as (1) the animal reservoir(s) in which it is circulating, (2) the main exposures and routes of transmission to humans, and (3) the distribution and prevalence of this virus among people and animals (including the distribution in wild birds), human infection appears to be associated with exposure to infected live poultry or contaminated environments, including markets where live poultry are sold, given the following:

- Over 80 % of human cases reported a history of exposure to birds or live poultry markets.
- The viruses isolated from humans are avian influenza viruses and are genetically similar to those isolated from birds and the environment.
- Targeted testing of poultry and the environment in live poultry markets that were epidemiologically linked with human cases of H7N9 infection have revealed more positive results than testing in areas not linked with human cases.

Current evidence suggests that these avian influenza A(H7N9) viruses do not transmit easily from poultry or environments to humans, although their transmissibility may be greater compared with avian influenza A(H5N1) viruses.

Evidence regarding human-to-human transmission

Information to date suggests that this virus does not transmit easily from human to human, and does not support sustained human-to-human transmission.

A total of fourteen family clusters have been reported during the 2 waves. All clusters except for one cluster (3 family members) involved 2 family members.

Risk assessment

This 27 June 2014 risk assessment was conducted in accordance with WHO's published[2] recommendations for rapid risk assessment of acute public health events and will be updated as more information becomes available.

Overall, the public health risk from avian influenza A(H7N9) virus has not changed since the assessment published on 28 February 2014[3].

What is the likelihood that additional human cases of infection with avian influenza A(H7N9) viruses will occur?

The understanding of the epidemiology associated with this virus, including the main reservoirs of the virus and the extent of its geographic spread among animals, remains limited. However, it is

[2] http://www.who.int/csr/resources/publications/HSE_GAR_ARO_2012_1/en/

[3] http://www.who.int/influenza/human_animal_interface/Influenza_Summary_IRA_HA_interface_20December13.pdf

likely that most human cases were exposed to the H7N9 virus through contact with infected poultry or contaminated environments, including markets (official or illegal) that sell live poultry. Changes to hygiene practices in live poultry markets have been variably implemented in some provinces and municipalities. Since the virus source has not been identified nor controlled, and the virus continues to be detected in animals and environments in China, further human cases are expected in affected and possibly neighbouring areas.

Although the number of reported cases has declined considerably since the last risk assessment, cases with onset in June were reported from Guangdong, Jiangsu, Shandong and Zhejiang provinces, and it is likely that there will be more human cases in China within the next few months.

What is the likelihood of human-to-human transmission of avian influenza A(H7N9) viruses?

Current evidence suggests that this virus does not transmit easily among humans.

It is possible that limited human-to-human transmission may have occurred where there was unprotected close contact with symptomatic human cases. The number of clusters[4] in proportion to the number of confirmed cases remains comparable to the first wave. All clusters involved two people (except for one cluster of three people) with potential common exposure and no further human-to-human transmission was reported. None of the reported clusters have involved health-care workers. All these suggest that the transmissibility of the virus among humans remains low.

What is the risk of international spread of avian influenza A(H7N9) viruses by travellers?

Malaysia reported one human case with avian influenza A(H7N9) virus infection. The patient was a Chinese resident who travelled to Malaysia while sick, and was most likely exposed in China. No further cases were reported in Malaysia linked to this case.

It is possible that further similar cases will be detected in other countries among travellers from affected areas. Community-level spread in these other countries is unlikely as the virus does not transmit easily among people.

Does WHO recommend any travel and trade precautions related to the H7N9 outbreak?

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

What should countries do?

As the extent of virus circulation in animals is not clear, epidemiological and virologic surveillance and follow up of suspect human cases should remain high. WHO advises countries to continue strengthening influenza surveillance, reporting human infections as applicable under the IHR (2005), and other national heath preparedness actions. Current technical information as well as guidance related to avian influenza A(H7N9) can be found at the WHO website.[5]

[4] A "cluster" is defined as two or more persons with onset of symptoms within the same 14-day period and who are associated with a specific setting, such as a classroom, workplace, household, extended family, hospital, other residential institution, military barracks or recreational camp.
[5] http://www.who.int/influenza/human_animal_interface/influenza_h7n9/en/