

WHO provisional recommendation on influenza A(H7N9) vaccine virus

31 May 2013

Since 31 March 2013 when the public health authorities of China reported three cases of human infection with avian influenza A(H7N9) virus, a total of 132 human cases including 37 deaths have been reported¹. Epidemiological investigations so far have revealed that while limited human-to-human transmission cannot be excluded in two confirmed clusters of cases, there is no evidence of sustained human-to-human transmission.

Following the initial detection and genetic characterization of the novel A(H7N9) virus by the WHO Collaborating Centre for Reference and Research on Influenza (CC) in Beijing, genetic and antigenic analysis has been conducted jointly by the WHO CCs, including the CC in Beijing, Essential Regulatory Laboratories (ERLs), and other laboratories of the WHO Global Influenza Surveillance and Response System (GISRS). These results, along with those from veterinary partners, have provided critical insights into the evolution and biological properties of this novel influenza virus, including the following:

1. The virus is “low-pathogenic” for chickens, notwithstanding the capacity of these viruses to cause severe and fatal infections in people.
2. The virus appears to have acquired mutations associated with:
 - Adaptation of avian viruses to humans, swine and terrestrial poultry;
 - Increased transmissibility in experimentally infected ferrets; and
 - Enhanced replication at the temperature of the upper airway of mammalian hosts and possibly humans.
3. The virus is resistant to M2 inhibitors. In general, the virus is sensitive to neuraminidase inhibitors (NI), although resistance may emerge during treatment.
4. Humans have very little or no existing cross protective immunity.

Since the novel A(H7N9) virus seems to be able to transmit from animals to humans more readily than avian A(H5N1) influenza viruses, and little or no immunity against the novel virus exists in the human population, WHO is actively working with its Member States and partners on effective responses and preparedness. As part of these activities, candidate vaccine viruses² have been developed and made available by the WHO GISRS.

Based on genetic and antigenic analyses of this novel avian influenza virus to date, knowledge and experience accumulated with existing avian influenza viruses, and risk

¹ http://www.who.int/influenza/human_animal_interface/influenza_h7n9/en/index.html

² http://www.who.int/entity/influenza/vaccines/virus/candidates_reagents/summary_a_h7n9_cvv_20130525.pdf

assessment conducted by the WHO CCs and ERLs of GISRS, it is provisionally recommended that:

- An **A/Anhui/1/2013-like*** virus is used for the development of A(H7N9) vaccines for pandemic preparedness purposes.

* A/Shanghai/2/2013 is an A/Anhui/1/2013-like virus.

Status of development and availability, including relevant logistics, of A(H7N9) candidate vaccine viruses³, as well as biosafety requirements⁴ on handling the A(H7N9) candidate vaccine viruses are updated on the WHO website.

As part of the WHO pandemic preparedness practice of selection and development of candidate influenza vaccine viruses, including those for influenza A(H5N1) and A(H9N2), WHO will review closely the above recommendation along with new virological and epidemiological information obtained from the WHO CCs of GISRS and global surveillance.

The A(H7N9) viruses, including candidate vaccine viruses, are considered PIP Biological Materials and are being shared under the PIP Framework⁵.

For more information, please contact GISRS-WHOHQ@who.int.

³ http://www.who.int/influenza/vaccines/virus/candidates_reagents/a_h7n9/en/index.html

⁴ http://www.who.int/entity/biologicals/BIOSAFETY_RISK_ASSESSMENT_21_MAY_2013.pdf

⁵ http://www.who.int/influenza/resources/pip_framework/en/index.html