

Pandemic (H1N1) 2009 briefing note 15

5 NOVEMBER 2009 | GENEVA -- To date, extensive testing by laboratories in the WHO influenza surveillance network has detected no signs that the H1N1 pandemic virus has mutated to a more virulent form. Currently licensed pandemic vaccines closely match circulating viruses and are expected to confer good protection.

Vigilance for changes in the H1N1 virus includes monitoring to detect possible influenza infections in susceptible animals, both mammals and birds, as well as humans. While most influenza A viruses circulating in mammals preferentially infect a single species, cross-species transmission is known to occur.

Infections in swine

Concern has traditionally focused on swine, which are susceptible to infections from human and avian influenza viruses as well as swine influenza viruses. As influenza viruses have eight neatly segmented genes, swine could theoretically operate as a viral "mixing vessel" for the exchange of genetic material when an animal is co-infected with different viruses. Such an event could lead to changes in the genetic makeup of the H1N1 virus or result in a novel influenza virus of unknown public health significance.

Since the new H1N1 pandemic virus emerged, a small number of infections in swine herds have been reported. Limited evidence suggests that these infections occurred following direct transmission of the virus from infected humans to swine. These isolated events have had no impact on the dynamics of the pandemic, which is spreading readily via human-to-human transmission. As human infections become increasingly widespread, transmission of the virus from humans to swine is likely to occur with greater frequency.

Influenza in other species

In addition, pandemic H1N1 infections have been reported in turkeys in Chile and Canada and in a few pet animals in the USA. Again, these infections were isolated events and pose no special risks to human health.

The virus is killed at normal cooking temperatures. No human infections have been linked to the consumption of properly prepared meat or animal products, or any other food items.

Another concern is the continuing presence of the highly pathogenic H5N1 avian influenza virus in poultry in several countries, where the virus is endemic. While no one can predict how the H5N1 virus might behave under the pressures of a pandemic, all data to date have been reassuring.

Most recently, authorities in Denmark reported a novel H3N2 influenza virus in mink on several mink farms. Sequencing of the virus demonstrated a combination of human and swine genes that has not been identified previously in circulating influenza viruses. Testing of farm workers detected no spread of the virus to humans. However, the incident demonstrates the constantly evolving ecology of influenza viruses, the potential for surprising changes, and the need for constant vigilance, also in animals.

Close monitoring needed

These recent findings further suggest that influenza A viruses in animals and humans increasingly behave like a pool of genes circulating among multiple hosts, and that the potential exists for novel influenza viruses to be generated in animals other than swine. This situation reinforces the need for close monitoring and close collaboration between public health and veterinary authorities.

When influenza infections are detected in farmed animals, WHO recommends monitoring of farm workers for signs of respiratory illness, and testing for H1N1 infection should such signs appear. FAO and OIE recommend that animals that are showing signs of illness be examined and properly managed, and allowed to fully recover before being transported or marketed.

In addition, samples from infected animals and humans should be taken for full genome sequencing of the influenza viruses to determine if mutations have occurred that could lead to changes in virulence, host range or antiviral resistance. Such sequencing is also important to assess the possible origin of the case or outbreak.

Official notification

Highly pathogenic avian influenza virus infections in birds must be reported to the World Organisation for Animal Health (OIE), as must any "emerging disease" in animals. This would include infections with the pandemic H1N1 virus or other novel influenza viruses, when consistent with the "emerging disease" criteria for official notification.

These animal health events should be reported, together with the results of epidemiological and virological investigations, in keeping with OIE requirements for notification.

Source: http://www.who.int/csr/disease/swineflu/notes/briefing_20091105/en/index.html