PUBLIC HEALTH COMMUNICATION CENTRE AOTEAROA

Aotearoa’s first case of highly pathogenic avian influenza: Heightened awareness and surveillance essential for early detection

11 December 2024

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Summary

Aotearoa New Zealand confirmed its first case of highly pathogenic avian influenza (HPAI) virus infection on a free-range egg farm in December 2024. The subtype, H7N6, is distinct from the globally circulating HPAI H5N1 subclade 2.3.4.4b, which, to date, has never been detected in New Zealand. Biosecurity controls have been imposed to contain the outbreak, restricting the movement of birds, poultry products, feed and equipment. This highly pathogenic subtype likely evolved locally from a low-pathogenic H7 subtype found naturally in wild aquatic birds. While humans can be infected with H7 subtypes, and they can cause high mortality, human infection is rare and typically limited to those with exposure to infected birds. Targeted surveillance and monitoring of both poultry and wildlife is necessary to rapidly detect such emergence events in the future.

This Briefing covers the first detection of highly pathogenic avian influenza (HPAI) virus subtype H7N6 in Otago, Aotearoa New Zealand (NZ). We discuss its impacts and priorities for future surveillance efforts to ensure the safeguarding of animal and public health, as well as industry resilience.

Avian Influenza virus in Aotearoa: Scale and impact

Over the past two decades, low pathogenic avian influenza (LPAI) viruses have been detected in NZ's wild birds following the introduction of avian influenza viral surveillance by the NZ Ministry for Primary Industries in 2004.[1,2] While H7 subtypes have been detected through this surveillance, they have been previously restricted to waterfowl.[1] This strain is naturally found in wild birds and typically causes only asymptotic infections. When it spills over to poultry, however, the virus can adapt, acquiring mutations that result in severe disease.[3] The detection of this highly pathogenic strain, subtype H7N6, on a chicken farm in December 2024 marks the first HPAI case in NZ.

The HPAI H7N6 subtype is distinct from the globally spreading HPAI H5N1 subclade 2.3.4.4b. With its wide host range, this lineage of HPAI H5N1 has been devastating for wildlife and is a significant risk for public health and livestock industries worldwide.[4] While the host range of H7 strains is more restricted than HPAI H5N1,[4] HPAI H7N6 poses serious challenges to the poultry and egg industry.[5] The HPAI H7N6 subtype is unrelated to the Australian H7 strains that have caused multiple avian influenza outbreaks in 2024.[4,5] Instead, poultry were likely exposed to LPAI strains from wild waterfowl, which subsequently mutated locally to a highly pathogenic form.[6] Unlike the recently emerged H5N1 lineage, current evidence suggests that HPAI H7 subtypes are less likely to be transmitted back to wild birds.[4,5,7-9]

Biosecurity response and risk to public health

At the time of writing, the outbreak remains localised to a single farm with no reported onward spread.[5] However, continued surveillance is required during the 14 to 21-day viral incubation period.[10,11] The risk to public health remains low, although healthcare providers may consider testing for infection in people exposed to animals infected with HPAI.[5,12]

Biosecurity measures for controlling onward spread have been rapidly implemented and include depopulating infected sheds, farm-wide testing and restricting movement of animals, equipment and people. The virus is not considered to be a food safety risk, but the general advice is to ensure eggs and poultry are thoroughly cooked before eating.[13]

Preparedness and future surveillance needs

NZ is fortunate to, so far, remain free of the HPAI H5N1 lineage currently sweeping the world. The current H7 outbreak serves as a timely reminder of the disruption viral emergence events can cause to agriculture, as well as public and animal health. In addition, the lessons learned from other recent experiences, for example the eradication of infectious bursal disease in 2019, have further enhanced NZ's capacity to rapidly respond to HPAI H7N6.[5,14] Continued investment in viral surveillance, coupled with enhanced public and industry awareness, is crucial for rapid identification and control of future outbreaks.

More targeted surveillance of sea and shorebird populations, as well as their environment, and of people who interact at this animal interface, would provide a better understanding of the evolution and transmission of avian influenza virus and help to assess future spillover potential. These efforts would provide insights into the transmission, prevalence, and evolution of avian influenza viruses within NZ and could serve as an early warning system for future viral spillover events. Further, using environmental sampling for more feasible large-scale surveillance may enable a better understanding of the prevalence of avian influenza viruses throughout NZ. This information would shed light on the risk of such viruses emerging again in this country.

This outbreak serves as a further reminder about the need to rapidly enhance pandemic preparedness. That goal would be supported by reviewing and implementing the recommendations of the Royal Commission of Inquiry into Covid-19 without delay.[15]

What this Briefing adds

- The HPAI H7N6 subtype is distinct from the HPAI H5N1 subclade 2.3.4.4b, which is a lineage of HPAI of global concern.
- While H7 subtypes naturally circulate in wild birds causing asymptomatic infection, the virus can mutate in chickens resulting in severe disease.

Implications for policy and practice

- NZ should further enhance public and industry awareness of the risks of HPAI to ensure future cases are rapidly detected and reported.
- NZ should strengthen collaboration between government agencies and infectious disease researchers to ensure a coordinated, integrated and effective response to HPAI outbreaks.
- NZ should expand wildlife surveillance to provide greater sensitivity to detect the incursion and emergence of HPAI and understand the transmission, evolution and prevalence of avian influenza viruses. This action would help develop mitigation strategies to reduce impacts on agriculture, the environment and public health.
- NZ should rapidly review and implement the pandemic preparedness recommendations of the Royal Commission of Inquiry into Covid-19.

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