

AVIAN INFLUENZA

Highly pathogenic avian influenza or bird flu is a highly contagious viral infection that can affect all species of birds. In intensive poultry rearing systems young turkeys and laying hens are usually the most affected.

The current outbreak of bird flu in Asia is caused by highly pathogenic avian influenza virus, (subtype H5N1), which has caused significant disease in South East Asian poultry since 2003.

Not all avian influenza viruses cause disease

Avian influenza viruses are naturally present in healthy wild birds, especially water fowl. Most strains of avian influenza virus do not cause disease in humans or birds.

The viruses that cause bird flu are Influenza A viruses of the family *Orthomyxoviridae*. Influenza A viruses infecting poultry are grouped on the basis of subtype and their ability to cause disease in chickens. Infrequently, certain virus strains change to cause significant disease (highly pathogenic avian influenza (HPAI)) in poultry.

Some strains of avian influenza cause disease in birds

All outbreaks of highly pathogenic avian influenza in birds to date have been H5 and H7 subtypes, although not all H5 or H7 subtypes cause disease. There are even strains of subtype H5N1 that do not cause significant disease.

The majority of avian influenza viruses cause no disease in their natural hosts. Some H5 or H7 viruses cause a much milder disease (low pathogenic avian influenza, LPAI), where signs of sickness are less evident or absent and fewer birds die.

It is not known why some strains of avian influenza become virulent in some species under certain circumstances while others do not, but it is thought that inter-species mixing (i.e. quails, geese, ducks and chickens) and high population densities, such as those that occur in bird markets in China and other Asian countries, may promote interspecies transmission with subsequent re-assortment of the genetic material in the viruses.

The risk of migratory birds "importing" avian influenza virus to New Zealand

Migratory waterfowl (ducks and geese) present a natural reservoir for avian viruses and can be responsible for the primary introduction of infection in other countries. Fortunately, New Zealand is not on a migration pathway of waterfowl, except very occasionally from southern Australia.



In intensive poultry rearing systems young fattening turkeys and laying hens are usually the most affected.

In New Zealand, the majority of migratory birds are shorebirds or waders, including bar-tailed godwit, lesser knot, ruddy turnstone, and Pacific golden plover that arrive from Siberian breeding grounds in September-October. There is evidence that some fly directly to New Zealand but others stop off in Asia and Australia. Shorebirds are a much lower risk than waterfowl (geese/ducks) because they shed less virus and mix less with poultry.

Migratory bird and waterfowl monitoring

MAF has long been aware of the theoretical risk of introduction of avian influenza viruses by migratory birds and has been monitoring migratory shorebirds soon after their arrival in this country. In the last two years, almost 2000 samples were collected from bar-tailed godwits, knots and wrybills (a non-migratory wader that is in very close contact with the migrants from the time of their arrival in New Zealand) and mallard ducks in the vicinity of arrival locations. No bird flu or highly pathogenic avian influenza viruses were found in any of these samples, or from sampling conducted in previous years.

Avian influenza viruses in New Zealand

Fifteen avian influenza viruses (2 H1N3; 9 H4N6; 2 H5N2; 1 H6N4; 1 H11N3) have been isolated and characterised in New Zealand over the past 15 years. All are non-pathogenic.

THE THREAT

Avian influenza or bird flu is a highly contagious viral infection that can affect all species of birds.



If you suspect your birds may be infected with avian influenza:

Contact Biosecurity New Zealand on: **0800 80 99 66**

November 2005



**BIOSECURITY
NEW ZEALAND**

Concern about the current outbreak

The present H5N1 bird flu is of concern because of the size of the outbreaks, the number of countries affected at the same time, and the wide range of birds being infected.

There are now several strains of H5N1, and some show signs of changing to infect birds without causing disease. Affected species now include wild ducks, geese and also tigers in zoos fed raw infected chickens.

When avian influenza viruses are circulating at the same time as human viruses there is potential for the two to "meet" and create a new influenza virus to which humans would have little, if any, immunity, and which can spread easily. There is no sign yet that the virus is easily spread from person to person.

Human cases of H5N1

H5N1 has been caught mainly by people handling poultry in situations such as markets and poultry farms, where they are exposed to both live and dead birds and their droppings.

Pandemic human influenza

Influenza viruses are highly unstable and are always changing. New human influenza viruses emerge every year.

Human pandemic influenza viruses are very rare but occur when a new virus, to which humans have no immunity, emerges. Genetic studies have shown that human pandemic influenza viruses have been derived from avian influenza viruses. The risk of a new virus emerging is greatest in areas where there is close contact between humans and animal populations (primarily poultry and possibly pigs) with high levels of infection i.e. as currently in Asia.

Risk of bird flu spreading between humans

There is no evidence of the current H5N1 bird flu being readily transmitted from one person to another. Adaptation to humans and evidence of human to human spread would indicate the emergence of a potential human influenza pandemic.

Transmission through food

There is no evidence that any of the human cases of avian influenza occurred as a result of eating cooked poultry products. Human cases are generally a result of direct contact with live and infected birds or the consumption of infected raw poultry meat or blood.

Importation of live birds and poultry products for human consumption

There have been no imports of live birds into New Zealand since 1997, except for zoo species such as flamingos.

Some highly processed products are imported including canned meat, chicken paste, powdered chicken stock, dried egg yolk, and feathers. Any virus would have been killed during processing, posing no risk to either animal or human health.

Hatching eggs

New Zealand imports live chicken, turkey, duck, goose and swan eggs from the United States, Canada, the United Kingdom, and Australia. Strict biosecurity measures, stringent testing regimes and New Zealand's major poultry disease free status proves that this system is highly effective.

What MAF is doing about bird flu

Bird flu, and any H5 or H7 subtypes of avian influenza that can mutate to become highly pathogenic avian influenza are classed under the Biosecurity Act as a notifiable exotic disease in New Zealand. Any suspect cases must be notified to MAF immediately.

MAF has comprehensive response plans and policies for bird flu or any H5 and H7 subtypes of avian influenza, as well as any other exotic strains of avian influenza of public health concern.

How you can help

Limiting contact between poultry flocks and wild birds (whether migratory or not) through good biosecurity practices is key to minimising the likelihood of avian influenza virus. Water and feed for poultry flocks must be stored so that they do not become contaminated with faeces of wild birds. Equipment should not be shared between flocks without cleaning and disinfection.

Bird flu symptoms to look for in poultry

- sudden and unexplained deaths;
- rapid spread of disease throughout the flock;
- depression and loss of appetite;
- a drop in egg production;
- signs of nervousness;
- swelling and blue combs and wattles;
- coughing, sneezing and diarrhoea.



Mortality is extremely high with deaths up to 100% over just a few days. Less virulent forms of the virus may show as mild respiratory disease, depression and a drop in egg production in laying birds.

Please call your animal health adviser or, alternatively, the MAF Emergency Pest and Disease Hotline on 0800 80 99 66 if you suspect your birds may be infected with avian influenza.

Where to go for more information

For information on human influenza and up-to-date NZ pandemic information, visit: www.moh.govt.nz/pandemicinfluenza

For international information see World Health Organisation at: www.who.int/csr/don

For information on countries where birds are affected, you can visit: www.oie.int/download/AVIAN%20INFLUENZA/A_AI-Asia.htm

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For further information, visit the Biosecurity New Zealand website:
www.biosecurity.govt.nz/pests-diseases/animals/avian-influenza/index.htm

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