What is avian influenza?

Avian influenza viruses are common infections in wild birds, primarily waterfowl. They usually do not cause disease in wild species but spread occasionally to domestic birds (ducks, chickens, turkeys) in which they can develop into strains that cause significant mortality in domestic species. Rarely, some strains can be passed from domestic poultry to humans. In addition, swine (pigs) can be infected with some strains of avian influenza viruses. Avian influenza viruses are not the same as the human influenzas (common "flu" viruses) that circulate every year in people.

How are influenza viruses named?

All viruses contain genetic material wrapped in a protein coat. Influenza viruses are separated into types based on two of the proteins in this coat: hemagglutinin (H) and neuraminidase (N). Strains of influenza viruses are named according to the type of H and N proteins that they contain as well as where they occur. For example, the strain of greatest current concern around the world is known as Eurasian H5N1. In addition, the mortality that strains cause in chickens is an indication of “high” or “low” pathogenicity (often shortened to high path or low path). Eurasian H5N1 is highly pathogenic to poultry. However, there are other strains of H5N1 that are not high path.

What do we know about avian influenza in North America?

Avian influenza viruses have been monitored in North America for over 30 years, including surveillance sites in Alberta. These studies show that:

- low pathogenic strains are common in North American waterfowl
- high pathogenic strains were isolated from wild birds in North America in 2014 and 2015
- the subtypes that evolve to high path strains (H5 and H7 subtypes) are very rare, particularly in birds that migrate through Alberta
- the viruses are more frequent in juvenile birds than adults and frequency differs among species
- virus frequency is variable from year-to-year and even month to month

What is going on in Eurasia with respect to avian influenza?

Eurasian high path H5N1 avian influenza was first described in Hong Kong in 1996. It then spread in poultry and domestic waterfowl populations throughout Southeast Asia. In 2005, the virus spread to wild, migratory waterfowl, leading to outbreaks in waterfowl in China and Mongolia. The virus is known to occur in several other countries in Central Asia, Eastern Europe, Western Europe, and Africa. The strain is thought to spread via the legal and illegal international trade in domestic birds and bird-related products, and to a lesser extent by migratory waterfowl. Millions of domestic birds were culled in an attempt to stop the spread of the virus. A limited number of people also contracted Eurasian H5N1, some of whom died. It is important to note this strain does not spread efficiently from human to human and to date no one has been infected directly from a wild bird.

How did the high pathogenic H5N1 virus come to North America from Eurasia?

It is likely that mixing of Eurasian and North American waterfowl in arctic breeding areas was the source of high pathogenic Eurasian strains in North America. This suggests there was limited sharing of influenza virus but once introduced, the new strains appear to have spread rapidly
across the US and are likely to occur in Canada. Further mixing of the Eurasian strains with resident North American strains may have given rise to new high path North American strains, or they may be spillover from infected poultry. Regardless of the origin, both the United States and Canadian governments maintain active monitoring programs to look for all high pathogenic strains of avian influenza in wild or domestic birds.

What happened in 2006? is Environment and Parks (AEP) doing about avian influenza?

Representatives from Environment and Parks (AEP) Fish and Wildlife participated in the provincial Avian Influenza planning committee. Environment and Parks, in conjunction with Alberta Agriculture and Forestry, implemented a surveillance program in wild birds as follows:

- July 15 through November 30, 2006
- tested dead waterfowl, particularly swans and raptors
- investigated reports of unusual bird mortality, and if appropriate, submitted samples for testing
- collected tissues from crows and magpies that were negative for West Nile virus and provided them to the national avian influenza surveillance program
- provided Alberta-specific information on our wildlife disease web pages

A report on the 2006 surveillance efforts was completed. A total of 83 found-dead birds was tested. Only three birds (2 gulls, 1 mallard) were found to have low pathogenic strains of avian influenza. No evidence was found of the highly pathogenic H5N1 strain, which caused mortality in parts of Asia, Europe and Africa. The report is available as Surveillance for High Pathogenic Avian Influenza in Dead Wild Birds in Alberta, 2006, ab-ai-surveillance-results2006.pdf

What happened in 2015?

In 2015 there were widespread outbreaks of highly pathogenic avian influenza in domestic poultry in the US as well as in British Columbia and Ontario. Significant numbers of poultry died or were culled in attempts to control the outbreaks. In addition, for the first time high path strains were detected in wild waterfowl in the US. Mortality in the wild appeared to be limited to a few raptors that likely ate infected waterfowl.

In response to these findings national, state, and provincial agriculture and wildlife agencies implemented enhanced surveillance programs in appropriate wild and domestic birds. They also worked with affected stakeholders to improve understanding of the risks and to encourage high quality biosecurity in regards to poultry.

What do I do if I find a dead wild bird?

Most bird species are not suitable for avian influenza surveillance (for example all songbirds, woodpeckers, and blackbirds). Effective surveillance should focus on the species most likely to be affected, and even then it is not necessary to test all individuals of these species. Alberta’s ongoing surveillance of wild birds primarily uses groups of dead waterfowl (particularly ducks, geese, and swans), gulls, and raptors (hawks, owls, eagles). Clusters of unusual mortality should be reported to a Fish and Wildlife office. Call toll-free 310-0000 to get the phone number of the closest office.

As a general guideline, members of the public should avoid handling live or dead wild birds. If handling can’t be avoided, wear disposable gloves, place a plastic bag over your hand before picking up the dead bird, or shuffle the dead bird into a box or container without touching it (for example, use a stick to move the bird). Wash your hands with soap and water, and disinfect using
alcohol, diluted bleach, or commercial disinfectants any surface that has come in contact with
dead birds.

**Is it still safe to hunt waterfowl?**

There is no evidence that healthy flying waterfowl are infected with avian influenzas that pose any
risk to hunters. To date, no person has been infected with avian influenza directly from wild birds.
Basic hygiene including washing hands with soap and water, wearing latex gloves, and
disinfecting work surfaces after processing wild birds are added precautions that further limit any
potential risk. Of course, normal hunting and gun safety precautions should be followed at all
times.

**What would happen if highly pathogenic strains of avian influenza were found in
wild birds in Alberta?**

All H5 and H7 subtypes of avian influenza must be reported to the Canadian Food Inspection
Agency. If subsequent tests identify high path strains, the public as well as provincial, territorial,
and federal agriculture, health and wildlife agencies would be notified. Visit the web pages
provided herein to find out what follow-up actions are planned by Canadian Food Inspection
Agency, Alberta Agriculture and Forestry, and Alberta Health. In conjunction with Alberta
Agriculture and Forestry, the Fish and Wildlife Division of Alberta Environment and Parks
continually monitors mortality in wild waterfowl, particularly the species and in the geographic
area in which high path strains are anticipated.

**If highly pathogenic strains of avian influenza were found in wild birds in Alberta,
would the government cull wild birds?**

No. Culling of wild birds is inefficient and ineffective in reducing the health risks to poultry or any
secondary health risks to humans.

**How does the avian influenza virus commonly found in wild birds relate to
pandemic influenza?**

Pandemic strains of avian influenza are so named because they readily spread among humans
and often cause fatal infections. Pandemic strains are extremely rare and currently none exist
anywhere in the world. The World Health Organization and many other health agencies are
concerned that current strains of avian influenza could give rise to a human pandemic strain that
passes freely from person to person and thus could pose serious risk to human populations. Note
that the source of pandemic strains occurs within people and not within wild birds.

**Where can I get more information?**

For information on wildlife diseases in Alberta, including avian influenza:

- **Wildlife Diseases**
  

For information on avian influenza from a poultry perspective, visit:

- **Agriculture and Forestry**
  
  http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex8136

Results of Canada's ongoing surveillance for avian influenza in wild birds:
• **Canadian Cooperative Wildlife Health Centre**  
  http://www.cwhc-rccsf.ca/data_products_wnv.php  
  For information on avian influenza federal poultry perspective, visit:

• **Canadian Food Inspection Agency**  
  http://www.inspection.gc.ca/animals/terrestrial-animals/diseases/reportable/ai/eng/1323990856863/1323991018946  
  For information on human influenzas, visit:

• **Health and Wellness**  
  http://www.health.alberta.ca/