

Diseases, Disorders and Injuries

Avian Influenza

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What is avian influenza?

Influenza, commonly called "the flu", is a contagious disease caused by viruses that mainly infect the respiratory tract, including the nose, throat, and lungs. Many varieties of influenza viruses exist. Some viruses infect only humans, others only birds, pigs or dogs. Some can infect more than one animal (called "cross-species"). In birds, this disease is called avian influenza or the "bird flu".

Avian influenza has been around for over 100 years. It was first reported as "fowl plague" in 1878 when it caused a lot of deaths in chickens in Italy.

Avian influenza can affect the respiratory, gastrointestinal, reproductive, or nervous systems (or combinations of these) in many kinds of birds and other animals. The earliest signs of infection in chickens are a loss of appetite and a decrease in egg production. Symptoms of avian influenza can range widely from mild illness to a highly infectious disease with up to 100% mortality. Some wild birds and waterfowl (like ducks and geese) can carry the virus without showing signs of infection. Domestic chickens and other poultry are very susceptible to influenza infections which can easily spread to other chickens and quickly turn into large outbreaks on farms.

NOTE: For information about the common flu in humans, please see the OSH Answers [Influenza](#).

How is avian influenza spread between birds?

Avian influenza is mainly spread by direct contact between infected birds and healthy birds. It can also be transmitted when birds come in contact with surfaces, equipment, or materials (including water and feed) that have been contaminated with feces or secretions from the nostrils (nares) or mouth of infected birds.

People can also spread the disease indirectly from farm to farm by carrying the virus on their clothing, boots or vehicle wheels.

Wild birds can carry the many avian influenza viruses without getting ill themselves. However, there have been a few rare situations where wild flocks became ill or where migratory birds infected local poultry flocks along their flight routes.

For more information on how to protect birds from bird flu, see the Canadian Food Inspection Agency's "[Protect your flock from bird flu](#)" document.

Can avian influenza spread to animals other than birds?

Yes. Avian influenza can infect other animals, especially those that eat wild birds or are exposed to high virus concentrations. These animals include dairy cows, skunks, foxes, raccoons, and sea lions.

Are all avian influenza viruses equally dangerous?

No. Avian influenza viruses can be classified as low pathogenic avian influenza viruses and high pathogenic avian influenza viruses.

Low pathogenic avian influenza (LPAI) means that the virus causes a mild disease like ruffled feathers and decreased egg production, or no signs of illness at all.

High pathogenic avian influenza (HPAI) causes severe disease and is extremely contagious. HPAI can cause up to 100% of an infected flock to die.

Low pathogenic avian influenza (LPAI) viruses can change into high pathogenic avian influenza (HPAI) viruses. Precautions are therefore recommended regardless of the virus' severity. Both LPAI and HPAI can cause mild to severe disease in mammals, including humans.

What causes avian influenza?

Influenza A viruses cause avian influenza.

Is there more than one kind of influenza virus?

Yes. The influenza virus belongs to the family of orthomyxoviruses, which has four types: A, B, C, and D.

Only influenza A viruses cause influenza in birds. Influenza A viruses have been found in wild and domestic birds from around the world. The majority of viruses have been found in waterfowl (e.g., ducks, geese, gulls, and terns) and domestic birds (e.g., chickens, turkeys, ducks, geese, pheasants and quail). There are many distinct varieties of avian influenza A viruses but most do not cause any disease symptoms.

Influenza A viruses can also infect people and other animals such as pigs, hogs, dogs, horses, seals, whales, otters, skunks, coyotes, bears, foxes, cattle and mink. New influenza A viruses may cause epidemics and pandemics.

Influenza B viruses are usually only found in humans. Influenza type B viruses can cause human epidemics, but they have not caused pandemics.

Influenza C viruses cause mild symptoms in humans and do not cause epidemics or pandemics. Influenza C viruses have also been found in pigs and dogs.

Influenza D viruses affect cattle and can spillover to other animals but are not known to cause illness in people.

What is meant by the H5N1 or H7N9 virus?

Influenza A viruses are classified into subtypes and each subtype is further divided into strains.

The H and N letters refer to the different kinds of proteins found on the outside surface of the influenza virus. The various subtypes of the influenza A virus depend on the kinds of proteins that stick out from the surface of the virus – the haemagglutinin or HA protein and the neuraminidase or the NA protein. The body's immune system can make antibodies that can recognize these specific virus proteins (antigens) and, therefore can fight that specific influenza virus.

Researchers have found 18 kinds of HA proteins and 11 NA proteins in many combinations in bird flu viruses. These combinations are reported as subtypes of the influenza virus H(number) N(number). For example: H7N1, H9N2, H5N1, H7N9, etc. Small changes to the surface proteins create the different subtypes.

Can people get avian influenza?

Avian influenza viruses do not usually infect people. Most cases of infection in people are believed to result from direct contact with infected birds or contaminated environments such as poultry farms or live animal markets. Two types – H5N1 and H7N9 – have been responsible for most human illnesses worldwide to date.

Among all the avian influenza viruses that have caused illness in people, the subtype H5N1 has been associated with very serious illnesses and death. The [Public Health Agency of Canada](#) states that although human infections with this virus are rare, people who do become infected can become seriously ill and may die.

How does avian influenza spread to humans?

While rare, avian influenza in humans is mainly caused by:

- Handling poultry or wild birds (dead or alive), their feathers, fluids, or feces.
- Handling mammals (dead or alive), especially those that eat wild birds (e.g., skunks, foxes, raccoons, some marine mammals) or are fed raw meat (e.g., domestic cats, farmed fur animals).
- Working in potentially highly contaminated environments (e.g., live bird or animal markets and poultry farms), especially those that are poorly ventilated and indoors.
- Hunting, slaughtering, butchering, or consuming undercooked or raw meat or raw milk and organs from wild birds and mammals.
- Contact with contaminated vehicles, equipment, clothing and footwear at farms with infected animals.
- Contact with surfaces or water that may be contaminated with animal feces (e.g., ponds, troughs, buckets).

- Caring for or working closely with infected humans.

Avian influenza typically does not spread easily from animals to humans or from human to human. However, there have been very rare cases when the avian virus has spread from one ill person to another, but the transmission beyond that person has been limited.

What occupations may have workplace exposures to avian influenza?

Occupations that may have workplace exposure to avian influenza include:

- Poultry farm owner or worker
 - Small farm owner or worker
 - Farm maintenance worker
 - Poultry processing plant worker
 - Poultry culler (catching, bagging, transporting, or disposing of dead birds)
 - Worker in live bird or animal market
 - Dealer or trader of pet birds
 - Individuals working with live or recently killed domestic poultry or other potentially affected animals
 - Veterinary worker
 - Public health inspector
 - Persons handling wild birds or other wildlife (e.g., wildlife officer, researcher, or rehabilitator)
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What precautions can workers take?

People working or in contact with animals should always use appropriate control measures. Control measures will depend on the assessed risk to workers.

When risk may be low (e.g., working with healthy poultry or animal populations when there is no known local avian influenza detection or outbreak), consider the following control measures:

- Whenever possible, always work outdoors or in well-ventilated environments.
- Wash hands regularly with soap and water. If soap and water are not available, use hand sanitizer containing at least 60% alcohol.

- Avoid touching the eyes, nose, or mouth with unwashed hands.
- Do not consume food or drink or smoke in areas where animals are kept.
- Wash and change all clothes and shower after work.
- Stay home if feeling unwell.
- Get vaccinated for seasonal influenza. Although it does not protect against avian influenza, it can prevent the spread of viruses between people and animals and reduce the risk of people becoming infected with both viruses at the same time.

When risk may be high (e.g., culling infected birds, sampling and collecting dead birds and mammals, cleaning and disinfecting infected barns without proper personal protective equipment (PPE)), apply the above control measures and consider the following additional measures:

- Where possible, avoid direct contact with:
- Maximize indoor ventilation by increasing natural ventilation (e.g., opening windows and doors if safe to do so) and ensuring ventilation equipment is properly maintained. Seek advice from a ventilation specialist on possible improvements (e.g., increasing air changes per hour, reducing or eliminating recirculated air, etc.)
- Use low-pressure water (mist) to wet dust, feathers, fecal matter, etc. and allow them to settle (instead of being in the air) before cleaning
- If contact with birds and mammals or heavily contaminated environments is unavoidable, wear the following PPE:
- Follow proper [procedures](#) for putting on and taking off PPE
- Do not use PPE from one farm or work site at another farm or work site
- Clean and disinfect reusable [PPE](#) and safely discard disposable PPE (e.g., in a sealed plastic bag)

What are the symptoms of avian influenza in people?

The symptoms are similar to those of human influenza and can include fever, cough, aching muscles, headache, sore throat, eye infections (conjunctivitis), and serious respiratory infections, including pneumonia.

Some people can be infected by an influenza virus but experience no symptoms or develop only mild symptoms. Some infections result in severe symptoms and can lead to death.

Can people get avian influenza from eating poultry, eggs or other meats from animals infected with influenza?

No. Avian influenza is not spread by cooked food. There is no evidence to suggest that eating cooked poultry or eggs could transmit the virus to humans. While the World Health Organization recommends proper cooking as a good general practice, it is even more important in countries that have a current outbreak of avian influenza. The virus can be killed by heat so poultry and other meats and organs should be cooked to an [appropriate internal temperature](#) to make sure they are safe to eat. Eggs should also be thoroughly cooked (no runny yolks). Pasteurized cow's milk and milk products remain safe to consume. Milk from dairy cows in Canada must be pasteurized before sale.

[Food and kitchen hygiene](#) are also important. Juices from raw poultry, meat, or other animal products should not touch or mix with other foods that will be eaten raw. Always wash your hands thoroughly and disinfect surfaces after touching poultry products.

Can avian influenza turn into a human flu pandemic?

Typically, an influenza [pandemic](#) occurs when a new influenza A virus appears. As noted earlier, avian influenza does not spread easily or rapidly among humans. This characteristic does not lead to favourable conditions for a pandemic. Health officials monitor avian influenza outbreaks closely.

What are my options for vaccination or antiviral medication?

There is not an avian flu vaccine available in Canada for public use.

Seasonal influenza vaccines do not offer protection against avian influenza but can reduce the likelihood of dual infection with avian and human influenza viruses (which may help prevent the emergence of a novel pandemic strain). The National Advisory Committee on Immunization (NACI) recommends the seasonal influenza vaccine for workers in direct contact with poultry infected with avian influenza during culling operations.

Some antiviral agents may be useful in treating illness. Individuals who are at high risk of exposure or those who have pre-existing medical conditions that increase their risk of complications from influenza may be able to receive antivirals before exposure occurs (pre-exposure prophylaxis). Never self-diagnose or self-prescribe medication.

See the OSH Answers [Hand Washing - Reducing the Risk of Common Infections](#) for more details.

Other steps you can take for personal hygiene are listed in [Good Hygiene Practices - Reducing the Spread of Infections and Viruses](#).

What should I do if I become sick with avian influenza?

If experiencing symptoms of avian influenza and you've had occupational exposure, inform your employer, take time away from work, follow steps to avoid spreading the virus to others (e.g., wear a well-constructed, well-fitting mask when around others in indoor settings), and seek medical care. Follow the advice from your healthcare professional and local public health authority.

What should I do if I see an animal that is sick with avian influenza?

Contact your veterinarian and relevant provincial or territorial animal health authority if you observe sick or dead poultry or other domestic birds and mammals (and there is reason to believe it was caused by avian influenza), as well as the Canadian Food Inspection Agency (domestic birds and mammals), or the Department of Fisheries and Oceans Canada (marine mammals).

Wild birds and other wildlife that are sick or dead should be reported to:

- [Regional avian influenza hotline](#)
 - [Canadian Wildlife Health Cooperative](#) (non-governmental organization)
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Does CCOHS have more information about avian influenza?

Please see:

- [Avian Influenza A\(H5N1\) or “Bird Flu”](#)
 - [How to Protect Yourself from Avian Influenza A\(H5N1\) at Work](#) (Infographic)
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