Information for private practitioners

The Canadian Food Inspection Agency (CFIA) has notified the World Organisation for Animal Health (WOAH founded as OIE) of the confirmed presence of high pathogenicity avian influenza (HPAI) virus in Canada. Following the first detection of HPAI in Newfoundland in December 2021, spring and fall waterfowl migration drove the spread of avian influenza (AI) into new areas across Canada in 2022. The information below is intended to provide more detail on the current event[1] for poultry veterinarians as well as veterinarians working with small flock (backyard flock) owners. See the Avian Influenza webpage for general information on AI and CFIA response.

What is the lineage of the HPAI virus causing this event?

The HPAI H5N1 virus, first identified in 2021-22 in Canada, belongs to the wholly Eurasian A/Goose/Guangdong/1/96 (Gs/GD) lineage. The first HPAI H5N1 virus belonging to this lineage was first identified in a domestic goose in southern Guangdong province of China in 1996. In 2020, the virus spread to Europe and from there to North America in November 2021. The Gs/GD lineage has since evolved and has reassorted with viruses of the North American wild bird gene pool to form several reassortant viruses. Reassorted viruses can have genetic changes and indicators of mammalian adaptation that may impact transmissibility and/or pathogenicity in mammals, including in humans, and are very important to monitor.

How are different species of poultry affected by HPAI?

The HPAI virus implicated in the 2021-2022 event in Canada is considered highly virulent and has been generally observed to cause high morbidity and mortality in affected flocks, particularly in Galliformes (chickens & turkeys). Turkeys appear to be the most severely clinically affected of all domestic birds. Of note, during the 2021-2022 event thus far, there have been confirmed cases in Anseriformes (ducks and geese) flocks where high mortality was not observed and in some broiler flocks where clinical signs were not evident at the time of detection; these cases are sometimes referred to as silent infections.

Where have HPAI outbreaks occurred during this event?

CFIA has reported cases of HPAI in poultry in nine (9) provinces: Newfoundland and Labrador, Nova Scotia, New Brunswick, Quebec, Ontario, Manitoba, Saskatchewan, Alberta and British Columbia.

The current event is unique given the number and variety of wildlife species (including mammals) affected, the geographic distribution, and the number and variety of poultry and non-poultry premises affected. Cases seen in 2023 are still considered to be part of the same event that was first detected in Newfoundland in December of 2021.

[1] CFIA uses the term "outbreak" to describe an infected flock and "event" to describe a series of outbreaks that are linked to the same viral strain.

Why are the outbreaks so widespread during this event?

The virus has been circulating naturally in wild birds and waterfowl and is spread through migratory birds travelling along flyways. The current outbreak is unprecedented in geographic spread, duration of the outbreak, and the number of avian and mammalian species affected. More information on HPAI in wildlife can be found here:

CWHC-RCSF : Canadian Wildlife Health Cooperative - Réseau canadien pour la santé de la faune

Are there concerns regarding human health impacts of HPAI?

Avian influenza viruses can, on rare occasions, cause disease in humans. People working with poultry and other potentially infected animals (including veterinarians and veterinary staff) should take precautions and are strongly encouraged to follow all public health guidelines and maintain strict biosecurity.

Additional information can be found here:

- Avian influenza A(H5N1): Symptoms and treatment - Canada.ca
- Avian influenza A(H5N1): Prevention and risks - Canada.ca
- Avian influenza A(H5N1): For health professionals - Canada.ca

How can private practitioners help?

Early detection of infection is crucial to CFIA's ability to respond to stamp out HPAI in a flock and help reduce the risk of spread to other flocks in the area. Private veterinarians can assist with the Canadian response to HPAI in the following ways:

Prevention

1) **Make your clients and veterinary staff aware** of the unprecedented situation in North America. The continued detection of infected wild birds in Canada and the spread of avian influenza across the globe is a strong reminder for anyone raising birds to remain vigilant against HPAI and to practice enhanced biosecurity habits.

2) Remind your clients of the **modes of transmission** of HPAI. Experience from the 2022 HPAI event in Canada thus far suggests that most cases have occurred as a point-source introduction through indirect exposure to a HPAI-contaminated environment or wild birds. A smaller proportion of cases appear to have occurred as a result of direct contact with wild birds. Analysis of case clusters observed in some scenarios in Alberta, Quebec, Ontario and BC indicates that lateral transmission of the virus through common ownership or shared employees is also a possibility. It is strongly recommended that bird owners practice enhanced biosecurity to take into account these modes of transmission.

   Additional information can be found here:

   - Keep your birds safe - Canadian Food Inspection Agency (canada.ca)

- Avian Biosecurity – Protect poultry, prevent disease

Links to more detailed information on prevention of virus introduction for commercial producers can be found in Appendix A of this document.

Preparedness

1) **Remind your clients of the signs of avian influenza.** The signs of AI are very similar to those seen with velogenic Newcastle disease and other poultry diseases. Some or all of the following clinical signs are evident in infected **Galliformes** (chicken and turkeys):
   - **high and sudden mortality rate**
   - a drop in production of eggs, many of which are soft-shelled or shell-less
   - diarrhea.



Quietness and extreme depression



Wattles and combs become extremely congested



Swollen eyelids



Hemorrhages on the hocks

Photos sourced from WOAH Atlas of Transboundary Diseases

Anseriformes flocks (ducks and geese) may only show low mortality or mild clinical signs, such as a drop in egg production.

2) **Have your clients prepare enhanced handling and disposal procedures on their farm.**

Remember to select a disinfectant that is known to be effective against avian influenza viruses, such as 2% sodium hypochlorite, hydrogen peroxide or phenols. Examples of disinfectants effective against avian influenza virus

Handling:

- Remind your clients of the potential zoonotic risk of avian influenza and to wear proper personal protective equipment (PPE) including a face mask, gloves and boots. See Appendix B of this document for more details on PPE, including donning and doffing.
- Thorough hand washing is essential even if wearing gloves.
- Advise your clients that barn-dedicated clothing should not be worn in the house or off the property.
- Recommend that the number of people attending to the flock be kept to a minimum.

Housing:

- Recommend that sick birds be moved into isolation (a separate area away from healthy birds, with a separate feed and water source) and attended to after the healthy birds have been cared for.
- Advise owners to have barn-dedicated footwear and coveralls that are only worn in the enclosures and buildings in which birds are kept.
- Advise owners that any equipment or supplies taken into the area where birds are kept should be cleaned and disinfected before entry and not shared between barns/properties unless properly cleaned and disinfected.

Disposal:

Small flocks: Advise owners that after sampling to test for HPAI, mortalities should either be disposed of by deep burial (deep enough that scavengers do not have access) or burned. This should be done as far away from the rest of the flock on the property as possible, and according to provincial requirements.

Commercial Flocks: Advise owners that mortalities should remain in the barn until testing has been completed with negative results in order to minimize any potential spread.

3) **Prepare your clinic:**

Permits:

If you are practicing in an area that has already been designated as a Primary Control Zone (PCZ), permits may be required for certain activities. See Avian influenza – permits and conditions needed for movement control - Canadian Food Inspection Agency (canada.ca) for CFIA's interactive permitting tool.

Sampling supplies:
Contact your local CFIA Animal Health district office to determine how to obtain Universal Transport Media (UTM) vials, swabs, submission forms and shipping procedures in preparation for HPAI sampling.

Live birds:

- Inform your clients that they should refrain from bringing live poultry to the clinic for diagnostics. Instead, samples should be taken on-farm.

Carcasses:

- The best option may be to inform your clients that you will perform sampling of carcasses at the farm or in an outdoor area to avoid contamination of the clinic.
- If your clients routinely bring carcasses to your clinic, the practice should develop an enhanced biosecurity protocol for this purpose. Examples of in-clinic biosecurity enhancements include:
  Carcass reception:
  - requiring double-bagging of carcasses
  - having a specific drop box or dedicated entrance with cleaning and disinfection options available, such as foot baths, to limit cross-contamination.

  Post-mortems:
  It is highly recommended that post-mortems not be done in clinic unless you have a robust biosecurity plan in place, including:
  - dedicated area
  - personal protective equipment (PPE)
  - enhanced cleaning and disinfection between carcasses
  - bio-secure disposal.

Suspicion

Remember that during this unprecedented event, your index of suspicion for HPAI in flocks showing signs of illness or increased mortalities should be higher. In ducks and geese, even low mortality and/or a drop in egg production should raise suspicion of HPAI. **Suspect cases should be reported to CFIA as soon as possible.** The objective for any suspicion is rapid confirmation of infection, and therefore, the **focus is on the infected flock/barn where clinical/dead birds are identified.**

How to contact CFIA

The fastest way to get in touch with CFIA during an event response is to contact the Sick Bird Line for the area in which you practice. The contact information can be provided directly to your clients. Contact your local CFIA animal health district office to obtain the Sick Bird Call number specific to your area.

- If you are practicing in a region of Canada that does not yet have a CFIA regional emergency operations centre, your clients can contact their local CFIA animal health district office.

Who can contact CFIA

1) **Your clients can contact CFIA directly.**
2) **Private practitioners can contact CFIA.** If you have a strong suspicion of HPAI, contact CFIA to discuss a sampling plan. Swabs samples are preferable, but if it will not be possible to obtain the samples required, it is an option to send whole carcasses to the lab. Samples may be collected preferably from dead birds if you have a high suspicion of HPAI. If sampling birds in barns, you should only visit one premises per trip to allow for adequate cleaning and disinfection of both the exterior and interior of the vehicle used.

    - See Appendix B of this document for PPE recommendations
    - See Appendix C for farm gate sampling recommendations
    - See Appendix D for vehicle cleaning and disinfection

    Sampling protocols specific to each CFIA area and laboratory may be available. **Contact your local CFIA animal health district office to obtain the sampling protocol specific to your area.**

    You will be asked to provide your contact details to the district office so CFIA can contact you to discuss your sampling. You will be notified of sample results directly from the laboratory if you are the sample submitter or if your client has given permission to CFIA to do so. CFIA will also contact your client directly regarding the suspicion.

Response

Confirming a positive premises

At the current time during the HPAI event, CFIA will accept positive PCR test results for avian influenza from a Canadian Animal Health Surveillance Network (CAHSN) laboratory and proceed with response actions, including destruction, disposal and compensation. For more details on CFIA's response to HPAI, see Response to detections of H5N1 highly pathogenic avian influenza (HPAI) in Canada 2021 to 2023.

Thank you for your efforts to support Canada's response to avian influenza.

Appendices

Appendix A: Preventing spread from wildlife to commercial poultry flocks

Avian influenza in wild birds - Canada.ca
CAHSS Podcast Pearls - Preventing Avian Influenza with Dr. Jean-Pierre Vaillancourt

Other resources:

USDA Wildlife Damage Management Technical Series – Bird Dispersal Techniques
USDA HPAI Improving Biosecurity With Wildlife Management Practices: Preventing Access to Barns and Other Facilities
USDA HPAI Improving Biosecurity With Wildlife Management Practices: Reducing Water Access
USDA HPAI Improving Biosecurity With Wildlife Management Practices: Protecting Food Resources
USDA Prevent Avian Influenza at Your Farm: Improve Your Biosecurity with Simple Wildlife Management Practices

Appendix B: Personal protective equipment (PPE) and donning & doffing

Adapted from CFIA procedure for swabbing of mortalities at farm gate (Dead Bird Surveillance).

The link below takes you to a video showing the recommended containment biosecurity for sampling live birds on farm where HPAI is suspected or on a premises in a primary control zone for avian influenza. It also shows how to don and doff PPE to enter a barn. The process is the same for sampling of mortalities at farm gate.

Unassisted donning and doffing: https://youtu.be/jjSt8WX5cWM

The following minimum PPE is recommended:
Inner layer: clean rubber boots and clean cloth coveralls
Disposable layer:

- disposable boot covers
- disposable coveralls (e.g., Tyvek)
- Nitrile gloves
- N-95 mask/respirator (or as required by clinic safety protocols)
- hair net
- safety goggles (especially in situations with high mortality)

Sampler donning Procedure:

- ☐ Leave footwear in the car and put on clean cloth coveralls and rubber boots.
- ☐ Put on a second layer of disposable coveralls (e.g., Tyvek) over clean cloth coveralls being careful not to let the coveralls touch the ground.
- ☐ Coverall may be pulled up completely or left at the waist. Elastic pant legs go over the rubber boots. Keeping disposable coverall leg cuffs hooked over boot heels may make doffing easier, but be sure not to let the coveralls touch the ground.
- ☐ Put disposable treaded boot covers over rubber boots and pant legs of disposable coveralls.
- ☐ Place duct tape around seam between disposable boot covers and outer coverall to seal, leaving a tab for easy removal.
- ☐ Put on first layer of nitrile gloves.
- ☐ If disposable coverall is pulled up at this point, gloves will be underneath sleeves of disposable coverall as required.
  - Leave hood down and front partially zipped.
- ☐ Put on second layer of nitrile glove goes with cuff over sleeve of disposable coveralls.
- ☐ Press duct tape loosely around seam between outer glove and disposable coveralls to seal, leaving a tab for easy removal.
- ☐ Don respirator over hair, adjust straps and check to ensure a proper seal.
- ☐ Don safety eyewear next.
- ☐ Place bouffant hair net over the head and respirator straps.
- ☐ Pull hood of the disposable coveralls over the head, making sure it's close around the respirator on all edges.
- ☐ Zip disposable coverall to the top.

Sampler doffing procedure:

Once sampling is complete, PPE should be removed in such a way to avoid contamination of the sampler (ensuring that only clean touches clean and dirty touches dirty) and placed directly into a garbage bag.

- ☐ If wrist tape has been put on loosely enough, outer disposable coveralls can be removed without removing wrist tape. If tape is tight, remove tape, but leave second layer of gloves on at this point.
- ☐ Unzip outer disposable coveralls and pull back hood, not touching skin or inside of coveralls.
- ☐ Remove hood of coveralls and then reach behind to tug down at waist of disposable coveralls so they slip off shoulders.
- ☐ Pull disposable coveralls down until arms can be pulled partially out of sleeves. Do not pull hands out all the way.
- ☐ Use hands now covered by sleeves of disposable coveralls to roll disposable coveralls further down legs to expose top of disposable boot cover, ensuring that exterior of disposable coverall does not touch inner cloth coveralls and skin.
- ☐ Push down coverall and remove treaded boot cover, stepping with rubber boots onto clean inner surface of disposable coveralls and doing the same with the other foot.
  - If taped properly, outer gloves should come off with sleeves of disposable coveralls. Inner nitrile gloves stay on.
  - If tape had to be removed, carefully take off glove along with coverall, one hand at a time, only touching inside of disposable coverall with other hand. The first glove will be difficult to remove as your other hand will still be inside the sleeve.
- ☐ Remove outer coveralls fully while keeping boots on inside clean surface of PPE.
- ☐ Gather up disposable coverall, ensuring that only clean, inside surface is touched.
- ☐ Place disposable coveralls, outer nitrile medical examination gloves, and disposable treaded boot covers into garbage bag.
- ☐ Remove bouffant hair net and place it into garbage bag.
- ☐ Remove eye protection if used, and spray it with disinfectant.
- ☐ Remove respirator by pulling face piece away from the face and up without touching straps, and discard it into garbage bag.
- ☐ Remove inner gloves and place them into garbage bag.
- ☐ Spray inside of garbage bag and contents with a suitable disinfectant.
- ☐ Close bag and tie closed using cable ties.
- ☐ Spray exterior with disinfectant, then place into another large garbage bag which will go in "dirty" zone of vehicle.
- ☐ Vehicle should be taken as soon as feasible to a car wash. Appendix D describes in detail vehicle disinfection.

Appendix C: Farm gate sampling

- ☐ Park vehicle outside the security gate and ensure to wear adequate personal protective equipment (PPE).
- ☐ Have producers bring recent mortalities (within 24h if possible) down to the gate in a covered tote, tub or other container that can be closed.
- ☐ Collect oropharyngeal (OP) and cloacal (CL) swabs as per the sampling plan discussed with your local CFIA animal health district office. After swabbing, mortalities should be taken back into the barn by the producer.
- ☐ Follow area-specific protocol for sample preparation and submission (including disinfection of tubes, labelling, completion of submission forms, shipping and delivery).
- ☐ Remove PPE in a biosecure manner as per Appendix B.
- ☐ Disinfect vehicle as per Appendix D.

Appendix D: Travel routes and vehicle cleaning & disinfection

Adapted from General Permit issued by CFIA to move vehicles on and off premises located within a primary control zone

- ☐ Keep a hand sprayer of appropriate disinfectant as well as a large garden sprayer of appropriate disinfectant in the vehicle.
- ☐ Select routes in order to avoid areas with a high density of farms containing susceptible species.
- ☐ If performing farm gate sampling, it may be appropriate to make more than one stop. If entering the premises, it is recommended to shower and change clothing prior to next call.
- ☐ Use paved roads whenever possible. If the vehicle must drive over gravel roads, use caution and reduced speed.
- ☐ The vehicle must be free of any visible contamination with mud, slurry, animal feces, excretions or other similar matter before entering any premises with susceptible species.
- ☐ If the vehicle is not visibly clean, proceed directly to a truck or vehicle wash station prior to entering any premises with susceptible species.
- ☐ If a vehicle is taken inside a premises containing susceptible species, then on exit from the premises, park the vehicle to be cleaned on a large concrete surface or pavement close to the entry/exit point of the farm.
- ☐ Scrape or brush off all visible contamination from the surfaces and wheels.
- ☐ Clean the vehicle and spray an appropriate disinfectant over the wheels, wheel arches, mudguards, and underside of vehicle to achieve required contact time.
- ☐ Clean and disinfect all hand tools used during the vehicle cleaning with appropriate disinfectants.
- ☐ While performing these activities, the operator must wear personal protective outerwear, including but not limited to disposable foot covers and gloves.
- ☐ A heavy, wet spray application of disinfectant should be used to decontaminate the interior, floor mats and foot pedals of the vehicle cab before entering.
- ☐ Clean and disinfect boots, or remove disposable boot covers and spray with disinfectant for required contact time depending on disinfectant used, and discard in any garbage receptacle on the premises.
- ☐ Leave all disposable garbage on the farm at a designated place.
- ☐ Proceed directly to the nearest truck or vehicle wash station.