

TURKEY FARMERS OF CANADA

FARMING INFO SHEET

May 2024

AVIAN METAPNEUMOVIRUS (aMPV)

Background

Avian metapneumovirus (aMPV) causes acute highly contagious upper respiratory tract infection sometimes combined with reproductive disorders, primarily of turkeys, chickens, and ducks. The disease caused by aMPV has also been referred to as turkey rhinotracheitis (TRT) in turkeys and swollen head syndrome (SHS) in chickens. aMPV is not a food safety or human health concern.

It has a wide global distribution and causes serious clinical signs associated with severe economic losses and welfare implications, particularly when exacerbated by secondary pathogens. The mortality rate depends on virulence of virus strain, species, age of birds, breeding conditions, immune status, and risk of co-infections.

Types

Avian metapneumovirus is in the family *Pneumoviridae* and genus *Metapneumovirus*. It is an enveloped, single-stranded negative-sense RNA and has 4 subtype (A, B, C, D) and two unclassified subtypes. Subtypes A and B are considered a threat for the poultry industry because of their highly contagious nature and broad geographical distribution all over the world. Subtype A and B are identified in chickens and turkeys, while subtype C is identified primarily in turkeys as well as ducks. Other birds at risk include pheasants, game birds, and guinea fowl.

Transmission

Clinically healthy wild birds are considered a reservoir for aMPV (e.g., waterfowl, sparrows, swallows, pigeons, falcons etc.). The most common route of transmission of aMPV occurs horizontally through aerosol or by direct contact of respiratory secretions through people or contaminated equipment. So far, there is no clear evidence of vertical transmission through breeders to progeny.

Reporting

aMPV/Turkey viral rhinotracheitis is an immediately notifiable disease to CFIA. Only laboratories are required to contact CFIA regarding the suspicion or diagnosis of one of these diseases. There are currently no actions taken by CFIA in response to detection.



Provincial reporting depends on the province. Please refer to the Canadian Animal Health Surveillance System (CAHSS) tool to search for diseases and their status: www.cahss.ca/cahss-tools/reportable--notifiable-diseases.

Current Situation

On April 17, 2024, two turkey flocks in Ontario were detected with aMPV subtype B with one of the flocks experiencing high mortality. This was the first confirmation of the aMPV subtype B in poultry flocks in the country.

In recent months, multiple states throughout the USA have documented increased cases of aMPV subtypes A and B with significant economic losses, affecting broilers, broiler breeders, layers, cage free organic birds and turkeys. Eastern states, have been affected by avian metapneumovirus subtype B. Western states have been affected by avian metapneumovirus subtype A. All detections from previous aMPV outbreaks in the US were subtype C.

Clinical Signs and Diagnosis

Clinical signs in turkeys include:

- Snicking,
- Rales,
- Nasal discharge,
- Foamy conjunctivitis,
- Swollen infraorbital sinuses,
- Submandibular edema,
- Coughing,
- Open mouth breathing, and
- Head shaking.

Additional signs in turkey breeders include:

- Uterine prolapse can be secondary to coughing.
- Up to 70% drop in egg production (range 10-40%).
- Increased poor shell quality.
- Peritonitis.

Several other respiratory diseases can be confused with aMPV in the field.

Turkey morbidity ranges from 40 to 100% and mortality ranges from 0.4% to 50%. Severe disease can be identified in 3- to 12-week-old turkeys. Recovery can take up to 3 weeks.

Secondary infections are common and include bacteria (*E. coli*, ORT, *Pasteurella spp.*, *B. avium*, *R. anatipestifer*), mycoplasma (MG), aspergillosis, and viruses (e.g. IBV) resulting in potential development of airsacculitis and pneumonia.

There are challenges related to diagnostic testing for aMPV, as the virus does not persist within birds. The virus is cleared quickly and may only be detectable for 6-7 days post infection, so by the time clinical signs are recognized, it may be undetectable by PCR testing. Combining PCR and ELISA antibody testing can aid in diagnosing and tracking disease.

If your flock is showing clinical signs of respiratory disease, contact your veterinarian.



Watery ocular discharge and swelling of the infraorbital sinus in a turkey after natural AMPV infection.



Mucopurulent ocular discharge in a turkey after natural infection with AMPV.



Mucopurulent secretion in the infraorbital sinus of a turkey after natural infection with AMPV and secondary bacterial infection.

Source: MSD Veterinary Manual

Treatment and Prevention

There is no treatment for aMPV infection. Prevention includes general recommendations for disease management, including biosecurity and good barn management (i.e., ventilation, controlling temperature, not overcrowding, maintaining litter quality, having a good cleaning and disinfection program, and practicing downtime). Strong disease prevention programs to control immunosuppressive disease are also recommended in addition to proactive treatment plans for potential secondary bacterial infections.

Since it is an enveloped virus, it is sensitive to multiple disinfectants (quaternary ammonia, bleach, etc.). It is stable at pH 3.0 – 9.0 and inactivated at 56°C for 30 minutes. However, it has longer survival times (i.e., weeks) at lower temperatures and that could explain some seasonal patterns.

Vaccination

There are currently no licensed commercial aMPV vaccines available for use in Canada or the United States of America. Both live and inactivated vaccines are available and are widely used in countries where the disease is endemic, including in Europe. There are two types of live vaccines available on the market, one subtype A and the other subtype B, and information in the literature indicates that both products provide good cross-protection.

References

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