Avian influenza in wild birds

Information for veterinarians

Australia remains the only continent free from the high pathogenicity avian influenza (HPAI) strain H5N1 and ongoing vigilance and surveillance is required.

The emergence of the HPAI H5N1 clade 2.3.4.4b overseas has led to extensive losses of poultry and wild birds and mammals, particularly marine mammals and mammals that prey or scavenge on birds.

There is an increased risk that this severe clade of HPAI will enter Australia.

Veterinarians are encouraged to collect samples from relevant morbidity and mortality events to complement current surveillance activities and provide an increased likelihood of early detection of avian influenza.

What is avian influenza?

Avian influenza is an infectious disease of birds caused by influenza A viruses. It should be assumed that all bird species may be infected by HPAI virus.

Avian influenza virus strains are classified into two categories depending on the severity of disease in poultry:

- High pathogenicity strains (HPAI), which can cause severe clinical signs of disease and potentially high death rates among poultry.
- Low pathogenicity strains (LPAI) which typically cause few or mild clinical signs.

HPAI viruses have never been detected in free ranging Australian wild birds.

LPAI viruses can spill over from wild birds to kept birds and reassort to HPAI viruses.

All previous outbreaks of HPAI in poultry in Australia, including the recent H7 outbreaks in Victoria, New South Wales and Australian Capital Territory, are linked to these spillover events.

While there are other diseases of wild birds that can cause similar clinical signs, HPAI should be excluded as a priority to ensure that HPAI can be detected as soon as possible and any associated risks to animal and human health can be managed.

Clinical signs of avian influenza

- incoordination, tremors, swimming in circles
- twisted necks or other abnormal posture
- inability to stand or fly
- diarrhoea
- difficulty breathing, coughing or sneezing
- swelling of the head, neck and eyes
- cloudiness or change in colour of eyes
- sudden death.

Target species

Wild birds

A wide range of bird species can be infected with avian influenza viruses, although waterfowl, seabirds and shorebirds are considered to pose the greatest risk.

Trigger conditions for avian influenza investigation and sample collection of a disease event.[1]

- where there are 5 or more sick or dead wild birds of any species, particularly those presenting with sudden unexplained death or gastrointestinal, respiratory and/or neurological signs
- less than 5 sick or dead wild birds of the following orders with any clinical presentation: seabirds, waterbirds, shorebirds, birds of prey or scavenging birds.

Wild mammals

A wide range of mammals have been infected with HPAI overseas, particularly marine mammals and mammals that prey or scavenge on birds.

Unusual mortality events in marine or other mammals (particularly in areas experiencing concurrent avian mortality events) should be reported to Biosecurity Queensland.

Other considerations

Timing

Large numbers of migratory waterbirds return to Australia every year during spring from the Northern Hemisphere via the East Asian-Australasian Flyway. However, waterfowl within the Australo-Papuan region could arrive in Australia all year-round, so ongoing vigilance is needed.

Location

Events occurring in coastal locations, i.e. near migratory shorebird arrival points; in close proximity to poultry farms and/or human populations; or in areas of high population density and numbers of waterfowl, seabirds, shorebirds or other vulnerable wild bird populations, should be investigated.

Sampling

Prevention of human infection

Some strains of avian influenza viruses can infect people. Precautions should be taken when handling or sampling birds.

Prevention of infection is maximised by the use of appropriate personal protective equipment (PPE) and practising thorough cleaning and disinfection of equipment and potentially contaminated skin.

Appropriate disposal of carcasses that come into your clinic and used or contaminated materials is also essential for prevention of spread of infection.

More information can be found in:

- Australian Veterinary Association Guidelines for Veterinary Personal Biosecurity: https://www.ava.com.au/policy-advocacy/policies/surgical-medical-and-other-veterinary-procedures-general/code-for-infection-control
- Avian influenza communicable disease control guidance: https://www.health.qld.gov.au/disease-control/conditions/avian-influenza

Samples

Recommended samples to be submitted from wild birds for avian influenza surveillance are:

- oropharyngeal and cloacal swabs (in virus transport medium or saline, chilled)
- where swabs are unable to be collected, whole dead birds (chilled, not frozen) may be submitted.

Only freshly dead or recently euthanased birds are suitable for necropsy. Carcasses that are decomposed or scavenged are unacceptable for submission.

A maximum of 5 birds will be tested from a particular disease event[1]. Additional testing within a single event will require liaising with

the laboratory and will be assessed on a case-by-case basis.

For advice on sample collection or submission of whole birds, call (07) 3708 8762 to speak with a BSL pathologist.

Sample submission

Packaging

Follow the below instructions when packaging samples for avian influenza exclusion:

- clearly label all samples with the anatomical location (i.e. oropharyngeal or cloacal) and bird ID (sequentially from 1), with a permanent marker
- send samples chilled and not frozen
- samples must be properly packaged to prevent leakage and cross contamination during transport and to maintain their integrity for laboratory testing:
    - transport samples in a sturdy insulated container
    - fresh whole carcasses should be double bagged, chilled and transported to the laboratory as soon as possible
    - if swab/VTM vials are being shipped with the carcasses these should be packed in a zip lock bag, plastic box or screw top plastic container
    - crumpled newspaper or similar absorbent material should be placed in the cooler with the bagged carcasses to fill unused space, hold the ice bricks in contact with carcasses, provide insulation, and absorb any liquids
- do not send specimens in glass bottles, poor-quality plastic containers, syringes or gloves
- if transporting with a commercial carrier, birds and samples are to be consigned as 'Biological Substance Category B' (UN 3373) and packed according to IATA packing instruction 650
- a fully completed specimen advice sheet (form A) is to accompany all submissions and placed on the outside of packaging.

Samples are to be submitted using your preferred courier service to the Biosecurity Sciences Laboratory in Coopers Plains (BSL), Brisbane.

Delivery address:
Specimen Receipt (Loading Dock 12)
Biosecurity Sciences Laboratory
39 Kessels Road, Coopers Plains
QLD 4108

If you are experiencing logistical or financial difficulty in transporting wild bird samples to BSL, please contact BSL (07) 3708 8762, bslclo@daf.qld.gov.au to discuss options for assistance.

Samples should be sent to be received during business hours (8am – 5pm) Monday to Friday.

Do not send samples to arrive at the laboratory after-hours, on the weekend or public holidays, unless prior arrangements have been made with the laboratory.

1. A single disease event is defined as a 3 km radius of where the birds were found over a period of 14 days.