

SCAR COMNAP

JOINT EXPERT GROUP ON HUMAN BIOLOGY AND MEDICINE

(JEGHBM)

Avian Influenza: A summary of “The Risk of Avian Influenza in the Southern Ocean:
A practical guide for operators interacting with wildlife”

With additional supporting information and guidance regarding impact of Avian
Influenza in Humans

**Guidance for Members
V2.0**

June 2023

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Avian Influenza: A summary of “The Risk of Avian Influenza in the Southern Ocean: A practical guide for operators interacting with wildlife¹”

With additional supporting information regarding impact of Avian Influenza in Humans

1. Summary:

1.1 Since 2022, there has been an increase in outbreaks of highly pathogenic avian influenza (HPAI) H5N1 in seabirds around the world, including in the Northern Hemisphere, southern Africa, and the Atlantic and Pacific Oceans.

1.2 The SCAR Antarctic Wildlife Health Working Group (AWHWG) is concerned about the potential arrival and impact of HPAI H5N1 on wildlife in the Southern Ocean, including Antarctica.

1.3 To mitigate the risk, the AWHWG recommends that operators working with or near wildlife in Antarctica and sub-Antarctic regions take precautions, such as using appropriate personal protective equipment (PPE) and maintaining high biosecurity measures to prevent transmission between wildlife aggregations.

1.4 National programs and tourism operators should monitor colonies for signs of H5N1 before approaching and tourists should avoid entering colonies and high wildlife density areas with suspected HPAI.

1.5 A detailed protocol on how to assess wildlife aggregations for HPAI should be provided to all stakeholders present in Antarctica.

1.6 If signs of HPAI are detected, it should be reported to the permit issuer with videos of affected animals for expert analysis. Operators should also review biosecurity and response guidelines for unusual/mass mortality events.

¹ Dewar M, Wille M, Gamble A, Vanstreels R, Boulinier T, Smith A, Varsani A, Ratcliffe N, Black J, Lynnes A, Barbosa A, Hart T. (2022). *The Risk of Avian Influenza in the Southern Ocean: A practical guide for operators interacting with wildlife*. [10.32942/osf.io/8jrbu](https://doi.org/10.32942/osf.io/8jrbu).

2. Avian Influenza:

2.1 Avian Influenza virus:

2.1.1 Avian influenza virus (AIV) is a type of Influenza A virus that infects birds. The strains of AIVs in wild birds are typically low pathogenic avian influenza (LPAI), which do not cause clinical signs of disease in wild birds.

2.1.2 However, some subtypes, such as H5 and H7, can become highly pathogenic in poultry and then escape into wild populations. The current global outbreaks of concern are caused by highly pathogenic avian influenza (HPAI) H5N1 viruses.

2.2 Spread of Avian Influenza:

2.2.1 Transmission and pathogenicity of avian influenza varies depending on the strain and the species it infects. In wild birds, LPAI is typically transmitted through faecal-oral route and environmental contamination, such as water.

2.2.2 Direct contact may also be a mechanism of transmission, including respiratory droplets. Colonial nesting seabirds may be at greater risk of disease spread due to the close proximity of individuals and nests, increasing contact rates among individuals or with infected faeces and water.

3. Avian Influenza in Seabirds and Risk to Southern Ocean Wildlife:

3.1 Aquatic birds, including ducks, geese, swans, shorebirds, gulls, terns, skuas, and auks, are the natural reservoir for avian influenza virus.

3.2 Since 2022, there has been a substantial increase in outbreaks of HPAI in seabirds around the world, including in southern Africa and the Atlantic and Pacific Oceans.

3.3 Seabirds in the Southern Ocean, including Antarctica, are at risk of HPAI due to their taxonomic closeness to seabirds affected by HPAI in other regions.

3.4 HPAI H5N1 has been linked to the death of harbour seals and other marine mammals, indicating the potential impact on Southern Ocean wildlife.

4. Detecting and Responding to possible outbreaks:

4.1 Mass mortality events can occur due to food stress, disease, or contaminants, and may be difficult to distinguish.

4.2 Diseased birds often die at sea, making it challenging to detect infectious agents such as HPAI.

4.3 Ongoing disease monitoring programs aim to differentiate between natural and introduced/emerging diseases, but precautionary measures should be taken in case of mass mortality events.

4.4 If unusually large numbers or clusters of dead animals are observed, assume it's due to disease and close the site until further investigation.

4.5 Alert the person who authorised your visit or issued your permit.

4.6 Entering possibly infected colonies, touching sick or dying birds, or collecting samples should only be done by trained personnel with appropriate PPE and biosecurity precautions, and with permits.

4.7 Signs of potential HPAI in wildlife may include neurological issues, trembling, rapid increase in bird deaths, lethargy, swollen head, respiratory distress, and discoloured droppings.

4.8 These signs can be observed with binoculars from a distance, but if in doubt, refrain from approaching the colony and report for confirmation from others.

5. Prevention and control measures:

5.1 Before leaving for Antarctica and sub-Antarctic islands:

5.1.1 Expeditioners/guides working in other wildlife areas should thoroughly remove any soiled material from their boots and disinfect all clothing, footwear, and equipment before leaving for Antarctica and sub-Antarctic islands to prevent the introduction of HPAI from other wildlife areas. It is recommended to use new clothes, footwear, and equipment when possible.

5.1.2 Guests should remove all soiled material and disinfect footwear before boarding the vessel, especially if they have been near wildlife colonies.

5.1.3 Use Virkon™ S, F10, or soap followed by 10% bleach for disinfection of boots and outer clothing.

5.2 Before visiting a colony or wildlife aggregation:

5.2.1 Follow regional specific advice/regulation, adopting the more precautionary approach if available.

5.2.2 Send an appropriately trained or experienced guide/research team to identify if a colony is potentially infected with HPAI. They should observe the colony using binoculars from a distance before entering the site or sending tourists to shore. If possible, avoid landing and make observations from a high vantage point at remote southern colonies. Observations using binoculars should be made at a distance of 150 m from the closest animal aggregation.

5.2.3 If there are signs of an unusual/mass mortality event or behavioural signs of HPAI within a colony, the visit should be aborted. Equipment and clothing should be disinfected as soon as possible, and the observations should be reported to the permit issuer/national authority immediately. Follow specific reporting forms or procedures, particularly for sub-Antarctic islands.

5.2.4 Clean and disinfect all equipment (including boots, backpacks, hiking poles, tripods, cones, or route markers) of any soiled material before disembarking the boat/leaving the base and every time after visiting a colony.

5.3 During a visit:

5.3.1 Visitors without a permit should always keep a minimum distance of 5 metres from wildlife, in addition to adhering to IAATO guidelines/ATCM general guidelines or any other local requirements. A greater distance may be required for different animal species and age cohorts. If an animal approaches, visitors should retreat to ensure the minimum distance is rigorously adhered to, unless specifically studying or sampling animals.

5.3.2 Avoid sitting or lying on bare ground or rocks, or leaving any equipment on bare ground or rocks close to animal activity or faecal matter (within 10 metres of nests, haul-out sites, or pathways). Freshwater pools should also be avoided.

5.3.3 To minimise animal exposure to equipment/potential fomite transmission, do not leave field equipment unattended and keep it far from wildlife.

5.3.4 Adhere to strict recommendations for personal hygiene at all times, including frequent hand washing for the appropriate time and regular disinfection.

5.3.5 Never touch birds, dead or alive unless you have a permit that specifically includes birds with suspected disease.

5.4 Post-visit:

5.4.1 Clean and disinfect all equipment (including boots, tripods, etc.) of any soiled material upon returning to the ship or a base after a shore visit. Wear a mask to prevent inhalation during cleaning.

5.4.2 Conduct field equipment disinfection procedures before and after shore visits.

6. Summary:

6.1 There is no current evidence of sustained person-to-person transmission of HPAI, and thus the risk of this is thought to be low. There is a risk of transmission from infected Avian wildlife, and this may cause severe disease.

6.2 Treatment is supportive, and early declaration of symptoms to medical personnel from those handling Avian wildlife with suspected disease is strongly recommended.

6.3 Prevention of transmission is key with the use of strict biosecurity practices.

6.4 The data provided outlines prevention and control measures for personnel living, working, and visiting Antarctica and sub-Antarctic islands to mitigate the risk of Highly Pathogenic Avian Influenza (HPAI) during the 2022/23 Austral summer. The recommendations include:

6.4.1 Thoroughly removing any soiled material from boots, clothing, and equipment, and disinfecting them before leaving for Antarctica and sub-Antarctic areas.

6.4.2 Disinfecting footwear before boarding vessels, especially if near wildlife colonies.

6.4.3 Using recommended disinfectants such as Virkon™ S, F10, or soap followed by 10% bleach for boot and clothing disinfection.

6.4.4 Observing wildlife colonies from a distance using binoculars to identify signs of HPAI before entering sites.

6.4.5 Aborting visits and reporting observations of unusual/mass mortality events or behavioural signs of HPAI.

6.4.6 Cleaning and disinfecting equipment before and after visits to colonies, and avoiding leaving equipment on bare ground or rocks close to animal activity.

6.4.7 Adhering to minimum distance requirements from wildlife and practising strict personal hygiene, including frequent handwashing.

6.4.8 Cleaning and disinfecting equipment upon returning to the ship or base after shore visits.

6.4.9 Wearing appropriate personal protective equipment (PPE) and receiving appropriate training for working with potentially infectious animals.

6.4.10 Minimising movements between wildlife aggregations without proper biosecurity measures.

6.4.11 Disinfecting outer clothing using soap and warm water daily before and after working with animals or visiting different colonies.

6.5 Overall, the data emphasises the need for personnel to take appropriate precautions and follow strict biosecurity measures to prevent the spread of HPAI in Antarctica and sub-Antarctic islands, including thorough cleaning, disinfection, and adherence to personal hygiene and PPE requirements.

7. Avian Influenza in Humans

7.1 Risk to Humans:

7.1.1 Globally there were 868 human cases of HPAI H5N1 with 457 deaths reported between 2003 and January 2023². The risk of infection in humans is low, but the mortality rate is high (~50%) if infected.

7.1.2 Human cases of HPAI have been reported in people closely interacting with birds, but there have been no examples of sustained human-to-human transmission³. There are some limited data showing a degree of transmission in other, non-human, mammalian populations.

7.1.3 If national programs decide to work at affected sites, only appropriately trained field staff wearing appropriate PPE should enter colonies with suspected HPAI and should not handle sick, dying, or dead birds.

7.2 HPAI Symptoms in Humans:

7.2.1 Highly pathogenic avian influenza (HPAI) in humans can cause a range of symptoms, which may vary in severity depending on the strain of the virus and the individual's immune response. Common symptoms of HPAI in humans may include:

7.2.1.1 Fever: High fever (often above 100.4°F or 38°C) is a common symptom of HPAI in humans. It may be persistent and accompanied by chills.

7.2.1.2 Respiratory symptoms: HPAI can cause respiratory symptoms, such as cough, sore throat, and difficulty breathing. In severe cases, it can progress to pneumonia, acute respiratory distress syndrome (ARDS), and respiratory failure.

7.2.1.3 Muscle aches and joint pain: HPAI may cause muscle aches, body aches, and joint pain, which can be similar to symptoms of seasonal influenza.

7.2.1.4 Headache: Headache is a common symptom of many viral infections, including HPAI.

7.2.1.5 Gastrointestinal symptoms: Some cases of HPAI in humans may present with gastrointestinal symptoms, such as diarrhoea, nausea, and vomiting.

7.2.1.6 Other symptoms: HPAI can cause other symptoms, including malaise, fatigue, chest pain, dizziness, and in severe cases, multi-organ failure.

7.2.2 It is important to note that not all individuals infected with HPAI may exhibit symptoms, and the severity of symptoms can vary. In some cases,

² https://www.who.int/docs/default-source/wpro---documents/emergency/surveillance/avian-influenza/ai_20230414.pdf?sfvrsn=5f006f99_113#:~:text=To%20date%2C%20there%20is%20no,have%20serious%20public%20health%20impacts. Accessed May 2023

³ <https://www.cdc.gov/flu/avianflu/h5n1-human-infections.htm> Accessed May 2023

HPAI infections in humans can be severe and result in life-threatening complications, including respiratory failure and death. Prompt medical attention should be sought if there is a suspected exposure to HPAI and symptoms suggestive of infection, especially in areas where outbreaks have been reported.

7.3 Treatment of HPAI in Humans:

7.3.1 The treatment for highly pathogenic avian influenza (HPAI) in humans typically involves supportive care aimed at managing the symptoms and complications of the infection.

7.3.2 There is no specific antiviral treatment for HPAI, and the use of antiviral medications such as oseltamivir (Tamiflu) and zanamivir (Relenza), which are commonly used for seasonal influenza, may not be effective against HPAI strains.

7.3.3 Care for HPAI in humans may include:

7.3.3.1 Hospitalisation: Severe cases of HPAI may require hospitalisation for close monitoring and management of complications.

7.3.3.2 Oxygen therapy: Patients with respiratory distress may require supplemental oxygen, including oxygen delivered through a mask, nasal cannula, or mechanical ventilation in severe cases.

7.3.3.3 Fluid management: Maintaining proper fluid balance is important in managing severe cases of HPAI, especially in patients with respiratory distress or dehydration.

7.3.3.4 Mechanical ventilation: In cases of severe respiratory failure, mechanical ventilation may be necessary to support breathing.

7.3.3.5 Antibiotics: Secondary bacterial infections may occur in severe cases of HPAI, and antibiotics may be prescribed to treat bacterial infections if present.

7.3.3.6 Other supportive measures: Other supportive measures such as fever-reducing medications, pain management, and other symptomatic treatments may be used as needed.

7.3.4 It is important to note that early medical intervention and supportive care are critical in managing severe cases of HPAI in humans. If there is a suspected exposure to HPAI or if symptoms suggestive of infection occur, prompt medical attention should be sought, and appropriate infection control measures should be followed to prevent further spread of the virus.

8. JEGHBM Summary and Key Recommendations for HPAI in Humans

8.1 Present evidence shows low transmissibility to humans and no sustained human and human transmission.

8.2 Human infection has an extremely high mortality of >50%

8.3 Virus mutation which leads to increase in human infectivity could have a catastrophic effect on the human population globally.

8.5 There is increasing concern that there will be spread of HPAI into the Antarctic environment with attendant risks to Avian and potentially other populations.

8.4 Recommendations and responsibility extend to NAPS, NGOs, IAATO

Includes all organisations who may interact with or be in close proximity to Antarctic Wildlife

8.5 Importance of prevention through

8.5.1 Limitation of potential contact with Avian Influenza

8.5.1.1 Non-essential and non-science visits of Antarctic avian populations are recommended to include initial assessment for Unusual Animal Mortality by an avian scientist or appropriately qualified person with expert advice prior to commencement of visitation. Visitation should be cancelled if there is evidence of Unusual Animal Mortality.

8.5.1.2 In the event of confirmed HPAI in the Antarctic animal community, it is strongly recommended that only essential contact occurs after expert Wildlife Health advice has been sought and approval given.

8.5.2 Adherence to governing body protocols including use of PPE as per governing body recommendations

8.5.4 No handling of birds unless required as part of authorised activity

8.5.5 Relevant organisations to have policy on HPAI and Unusual Animal Mortality Events

8.5.6 Provision of Unusual Animal Mortality Kits

8.5.7 Training

8.6 Planning

8.6.1 All stakeholders are recommended to develop medical response plan and model which is appropriate to the environment in which contact with HPAI could be reasonably expected to occur.

8.7 Testing

8.7.1 There is no readily available testing for HPAI

8.7.2 PCR tests exist (variably reliable) but requires access to equipment (not universally available)

8.7.3 Negative test is not rule out

8.8 Treatment

8.8.1 The mainstay of treatment is supportive management including predicted high level of Intensive Care requirement.

8.8.2 Antivirals: consider current advice and availability (generally recommended but some data showing possible resistance).

8.8.3 In line with current WHO guidance, the JEGHBM recommends antiviral treatment in people presenting with flu-like illness if they have been in contact with a bird population in which there was evidence of unusual mortality.

8.8.4 Consider the provision of prophylaxis in those with bird contact in which there is a break of PPE or direct contact with animals showing evidence of unusual mortality.

8.9 Information sharing

8.9.1 COMNAP NAPs and NGOs are strongly encouraged to report and share information on confirmed positive HPAI in animals in Antarctica, and suspected or confirmed cases in humans.

8.9.2 There will likely be national and international reporting requirements.

8.10 Future learning- what happens if HPAI mutates, increasing human infectivity?

8.10.1 Learning from Covid-19, Ebola

8.10.2 Extending to any emerging infectious diseases

8.11 Dissemination of this document

8.11.1 COMNAP

8.11.2 SCAR Expert Group – Birds and Marine Mammals- Working Group on Antarctic Wildlife Health.

8.10.2.1 Future development of this document is likely with further expert advice in SCAR.

8.11.3 WHO

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