

## Biosecurity – Influenza A viruses in pigs

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### Management of the biosecurity risk

The purpose of this procedure is to outline the diagnosis and management of influenza A virus infection in domestic pigs in New South Wales (NSW) under the *Biosecurity Act 2015* (the Act).

This procedure is to be read in conjunction with the Australian Veterinary Emergency Plan (AUSVETPLAN) 'Influenza A viruses in swine' response policy brief, available at <https://www.animalhealthaustralia.com.au/our-publications/ausvetplan-manuals-and-documents/>.

Influenza A viruses are considered ubiquitous in pig populations worldwide (OIE 2009).

Influenza A viruses have been detected in Australian pig populations, but have not been associated with significant production or public health issues.

### Scope

This procedure applies to NSW Department of Primary Industries (NSW DPI), an office within the NSW Department of Planning, Industry & Environment, and Local Land Services (LLS) staff in their role as Authorised Officers (AOs) under the Act.

### Biosecurity legislation summary

The Act requires everyone to take reasonable and practicable measures to prevent, eliminate or minimise the impact of biosecurity risks. This is your general biosecurity duty.

Note: Industry Standards and Codes of Practice should be consulted when considering how to discharge your general biosecurity duty.

Swine influenza (except influenza A(H1N1)pdm09) is listed as prohibited matter in Schedule 2 of the Act. A person who becomes aware of, or suspects, that a prohibited matter event has occurred, is occurring or is about to occur has a biosecurity duty to immediately notify the prohibited matter event in accordance with the requirements specified in the Biosecurity Regulation 2017 (the Regulation).

Influenza A(H1N1)pdm09 is listed as notifiable in Schedule 1 of the Regulation. A person who in the course of engaging in a dealing with biosecurity matter or a carrier becomes aware of, or suspects, the presence of any pest or disease listed in Schedule 1 must notify the presence of the pest or disease in accordance with Part 6 within 1 working day after the person first suspects or becomes aware of the presence.

A person is required to notify only if the person:

- (a) is the owner, occupier or person in charge of, or has the care, custody or control of, premises, a carrier or other thing in relation to which the pest or disease is present or suspected of being present, or

- (b) becomes aware of, or suspects, the presence of the pest or disease as a result of any consultation or other work carried out in relation to premises, a carrier or other thing in the person's professional capacity.

### **Work health and safety**

The *Work Health and Safety Act 2011* places an obligation on the agency (NSW DPI and LLS) as a person conducting a business or undertaking and workers to provide a safe and healthy workplace. Safe work method statements that support activities included in this procedure must be used in identifying, assessing and controlling risks.

NSW DPI and LLS will work together to create a safe and supportive work environment when undertaking any activities for this procedure.

Influenza A viruses have the potential to infect people. Workers must be protected from infection with influenza A viruses wherever they have contact with infected pigs. Protection includes vaccination with the currently available seasonal influenza vaccine and wearing appropriate Personal Protective Equipment (PPE). Basic hygiene is equally important: washing hands, provision of bathroom facilities or wash stations with soap and hot and cold water and clean working clothes. In addition, good ventilation in buildings is an important consideration.

Field staff who are likely to be engaged in a response must be vaccinated with the currently available seasonal influenza vaccine. Workers showing symptoms consistent with influenza must not contact pigs or poultry or participate in response activities.

The agency is responsible for providing instructions in the use of appropriate PPE to government personnel tasked with activities relating to this procedure. Non-government personnel will be responsible for supplying their own PPE.

Workers involved in response activities will require training and supervision to ensure that all activities are managed appropriately in relation to Workplace Health and Safety (WHS).

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# **Influenza A viruses in pigs procedure**

## **1. Roles and responsibilities**

### **1.1. NSW DPI Biosecurity and Food Safety**

- Determine by risk assessment what response, if any, is required to an influenza A virus outbreak in domestic pigs
- Notify Australian Pork Limited (APL) of influenza A virus events in domestic pigs (general locality only)
- Liaise with Agriculture NSW and external stakeholders (APL, NSW Farmers Pork Committee, Australian Pig Veterinarians group) when, for example, technical pig health expertise or industry knowledge is required
- Inform NSW Health if there are suspect or known public health risks
- Provide communications to emphasise that there are no food safety concerns in relation to influenza A virus infection in pigs
- Educate LLS district veterinarians in the recognition of influenza A virus infection in pigs
- Provide access to relevant industry and government extension material from a dedicated 'Influenza A viruses in pigs' web page
- Maintain the 'Influenza A viruses in pigs' primefact
- Maintain the 'The general biosecurity duty for pig producers' primefact

### **1.2. LLS**

- Act as supporting agency to the lead agency (NSW DPI) in response activities
- Provide support to pig specialist veterinarians and private veterinarians e.g. appropriate sample kits, arranging couriers for laboratory submissions
- Carry out influenza A virus exclusion testing activities in pigs when indicated by the clinical picture and available epidemiological information

### **1.3. NSW DPI Biosecurity and Food Safety/LLS shared responsibilities**

- Educate stakeholders (e.g. pig owners, private veterinarians) regarding relevant NSW legislation, including general biosecurity duty responsibilities and how to report notifiable animal pests and diseases
- Liaise with pig specialist veterinarians and private veterinarians during investigations and surveillance activities
- Samples for surveillance must be taken by a pig specialist veterinarian or a private veterinarian, stockperson or AO who is suitably experienced for these tasks and has knowledge of pig behaviour and production
- Consider pig welfare during all response activities
- Ensure appropriate data is entered on relevant data systems for reporting purposes

## **2. Diagnosis of influenza A virus infection in pigs**

### **2.1. Clinical signs**

- Sneezing
- Coughing\*
- High morbidity (naive herds)
- Low mortality (1-3% uncomplicated cases)
- Fever
- Anorexia
- Weight loss

- Delayed weight gain (increase in number of days to reach market weight)
- Lethargy
- Nasal discharge
- Respiratory difficulty
- Decrease in feed consumption (commercial piggeries)
- Abortions in sows
- Decreased semen production in boars
- Sows off feed for 1 day+

Note: severe bronchopneumonia may develop as a complication and is a high risk factor for mortality.

\* Coughing is a common manifestation among pigs. In addition to endemic respiratory diseases that cause coughing in pigs, environmental conditions will also induce coughing e.g. straw bedding, dust, cooler temperatures, heat stress, manure gases, fungal spores. Parasites can also cause coughing e.g. migrating *Ascaris suum* roundworm third larval stage through lung tissue.

## 2.2. Post-mortem findings

In uncomplicated infections, the post-mortem findings are mainly those of a viral pneumonia and are usually confined to the respiratory tract. Affected parts of the lungs are clearly demarcated, and are atelectic or consolidated, and dark red to purple-red. The lesions may be found distributed throughout the lungs, but tend to be more extensive and confluent ventrally. Other areas of the lung may be pale and emphysematous. The airways are often dilated and filled with copious mucopurulent exudate. The bronchial and mediastinal lymph nodes are typically oedematous, but not congested. Pulmonary oedema may also be seen.

Note: lesions can be missed at first inspection and may not be differentiated from *Mycoplasma hyopneumoniae* combined with secondary pathogens. Diagnosis requires histopathology and/or Polymerase Chain Reaction (PCR).

## 2.3. Differential diagnosis

Influenza A virus is one of several agents involved in acute respiratory disease in pigs, and can frequently be accompanied by other respiratory pathogens such as:

- *Mycoplasma hyopneumoniae* (endemic)
- *Pasteurella multocida* (endemic)
- *Streptococcus suis* (endemic)
- *Haemophilus parasuis* (endemic)
- *Actinobacillus pleuropneumoniae* (endemic)
- *Bordetella bronchiseptica* (endemic)
- Porcine circovirus type 2 (endemic)
- Porcine reproductive and respiratory syndrome (exotic)
- Aujeszky's disease virus (exotic)

## 2.4. Samples

- Index case investigations – samples should be sent to the State Veterinary Diagnostic Laboratory for exclusion testing and to the Australian Animal Health Laboratory for confirmation
- Nasal, oral or respiratory swabs from active clinical cases (preferably within 48 hours of the development of clinical signs), collected in virus transport medium
- Appropriate lung tissue fixed in formalin for histopathology
- Serum samples from recovered cases

## 2.5. Laboratory tests

- PCR or virus isolation
- Genetic analysis to fully characterise the viral subtype
- Histopathology
- Serology (surveillance tool)

## 3. Actions and steps

### 3.1. No response required

- A risk assessment indicates that risk reduction measures are not warranted to protect animal and public health
- Influenza A(H1N1)pdm09 incidents
  - Emerged in humans in North America in 2009, rapidly establishing as a worldwide pandemic
  - Likely human-to-pig transmission
- Provide advice to affected pig owner/person-in-charge (directly or via consulting veterinarian) on monitoring pig health and welfare, maintaining adequate biosecurity measures and general biosecurity duty requirements
- Provide WHS advice

### 3.2. Response required

- A risk assessment indicates that risk reduction measures are warranted to protect animal and/or public health
- Inform NSW Health if there are public health risks
- Assist producers on affected premises to manage the WHS risks
- Implement effective response activities as per the policy 'Principles for management of animal biosecurity and welfare in NSW'
- Maintain appropriate biosecurity on affected premises to protect the NSW pig industry
- Consider prevalence and extent of infection in domestic pigs

## 4. Definitions and acronyms

AO	Authorised Officer
APL	Australian Pork Limited
AUSVETPLAN	Australian Veterinary Emergency Plan
LLS	Local Land Services
NSW DPI	New South Wales Department of Primary Industries
PCR	Polymerase Chain Reaction
PPE	Personal Protective Equipment
WHS	Workplace Health and Safety

## 5. Documentation

- AUSVETPLAN 'Influenza A viruses in swine' response policy brief
- Policy - Principles for management of animal biosecurity and welfare in NSW (IND-O-224)
- Policy - Collection, use and disclosure of information (IND-O-226)
- Policy - Records management (IND-I-177)
- Policy - Information security (IND-I-197)
- Policy - Classified information (IND-I-196)
- Policy - Government information (public access) (IND-I-178)
- Primefact – Influenza A viruses in pigs (1654)

## 6. Records

- All investigation activities must be recorded in the Livestock Health & Management System and the Biosecurity Information System

## 7. Revision history

Version	Date issued	Notes	By
1.0	01/08/2019	New procedure developed in response to the revised AUSVETPLAN 'Influenza A viruses in swine' response policy brief	Animal Biosecurity

## 8. Contact

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