



Animal &
Plant Health
Agency

Swine influenza diagnosis: Government-funded surveillance at APHA



Introduction

Swine influenza is a contagious respiratory disease of pigs that occurs worldwide and is caused by infection with influenza A viruses. The Animal and Plant Health Agency (APHA) is an OIE international reference laboratory for animal influenza, including swine influenza, and has over 45 years of experience on influenza viruses in animals, advising the international community. APHA has various national and international collaborative programmes on the diagnosis, research and surveillance of influenza in pig populations. One of these is a UK Government-funded swine influenza surveillance project.

This surveillance monitors swine influenza viruses infecting pigs in the United Kingdom and provides valuable information about the changing trends in strains over the years relevant to appropriate diagnostics and vaccine selection. This surveillance is based on virological detection in nasal swabs or respiratory tissues using initial PCR followed by virus isolation and strain typing. The testing for swine influenza is provided free of charge to pig veterinarians and their pig-keeping clients and details on accessing this testing are provided below.

Testing for swine influenza

To confirm a diagnosis of swine influenza, the surveillance funds swine influenza PCR testing at APHA on pigs with acute respiratory disease or respiratory pathology. Veterinary practitioners submit nasal swabs or respiratory tissue pools from pigs specifically for influenza PCR tests. Testing for swine influenza is also undertaken during differential diagnostic testing (APHA or SRUC) when suitable pigs are submitted for subsidised post-mortem examination to the GB scanning surveillance network (APHA Veterinary Investigation Centres, partner PME providers and SRUC's Disease Surveillance Centres).

Use plain nasal swabs without any transport medium. Swabs should be inserted into the nasal cavity, twisted and removed. A maximum of **12 nasal swabs** from 12 individual pigs will be tested from an epidemiological group in an outbreak. If affected pigs are dead or euthanased, **three tissue pools (lung, trachea, tonsil)** from up to three individual pigs can be submitted. It is vital that swabs or tissues are collected from pigs **in the first few days of disease** as there is a short window of opportunity in which to detect swine influenza virus; individual pigs excrete the virus for only about seven days. Please send swabs or tissues to APHA to arrive next day requesting **swine influenza PCR**:

- **Send to:** The Sample Reception Area, APHA Weybridge, New Haw, Addlestone, Surrey, KT15 3NB
- From pigs on premises in England and Wales, complete this submission form <http://apha.defra.gov.uk/documents/surveillance/forms/form-apha3-porcine.pdf> and tick "Diagnostic" as reason for submission and fill in surveillance information
- From pigs in Scotland or Northern Ireland, complete this submission form <http://apha.defra.gov.uk/documents/surveillance/forms/form-lsw008.pdf> and tick "Other" as reason for testing, state swine influenza PCR under SV3041 and fill in surveillance information

Swine influenza strains

The swine influenza strains currently identified in UK pigs are H1N2, pandemic H1N1 2009 (pdmH1N109) and avian-like H1N1 and their reassortants. No H3 influenza virus strains have been detected through this surveillance since 1997 when H3N2 virus was present. Identifying swine influenza strains circulating in pigs is a vital component of APHA's swine influenza surveillance project which aims to monitor what strains are present, any changes within them, and detect novel strains. It is also important for directly informing appropriate strain selection for use in subtype-specific serological assays relevant to the UK and to match to vaccine strains. It is findings from this surveillance project that led to early detection of the pdmH1N109 emergence in pigs, a decline in avian-like H1N1 and changes in circulating H1N2 and pdmH1N109 viruses which prompted modifications to diagnostic assays to ensure they remain fit for purpose.

Diagnosis of swine influenza

The surveillance allows a diagnosis of swine influenza to be confirmed in outbreaks of respiratory disease and identification of the influenza strain involved. This is particularly valuable for pig units where vaccination is being considered and can also help in epidemiological investigations and ascertaining possible sources of virus infection.

Complex respiratory disease involving more than one pathogen, which may include swine influenza, frequently occurs in growing pigs. There is further advice about diagnosing causes of respiratory disease in pigs on the APHA website:

<http://apha.defra.gov.uk/documents/surveillance/sub-handbook.pdf>

Serology is not offered at no charge under this surveillance.

Swine influenza serology provides evidence of exposure and results from chargeable diagnostic testing using the HAIT serological panel offered by APHA can assist in determining the infecting virus strain. However, unless paired serology is performed, the presence of antibodies to swine influenza does not confirm a diagnosis of swine influenza.

Further information

Swine influenza is not a notifiable disease but there is more information about the disease on Gov.UK: <https://www.gov.uk/guidance/swine-influenza>.

Who to contact if you have questions

- Duty Veterinary Investigation Officer at APHA Bury St Edmunds
Email: BurySt.Edmunds@apha.gov.uk
Telephone: 03000 600018
- Duty Veterinary Investigation Officer at APHA Thirsk
Email: Thirsk@apha.gov.uk
Telephone: 03000 600098
- Susanna Williamson, Pig Expert Group Veterinary Lead, APHA
Susanna.williamson@apha.gov.uk
- Helen Everett, Avian Virology and Mammalian Influenza Group
Helen.Everett@apha.gov.uk