World Organisation for Animal Health

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WOAH Reference Laboratory Reports Activities 2025

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LABORATORY INFORMATION

***Name of disease (or topic) for which you are a designated WOAH Reference Laboratory:**	Swine influenza
***Address of laboratory:**	Virology, APHA, Woodham Lane, New Haw, Addlestone, KT15 3NB, United Kingdom
***Tel:**	+442080269669
***E-mail address:**	Helen.Everett@apha.gov.uk
Website:	www.gov.uk/apha
***Name (including Title) of Head of Laboratory (Responsible Official):**	Prof. Ashley Banyard
***Name (including Title and Position) of WOAH Reference Expert:**	Dr. Helen Everett
***Which of the following defines your laboratory? Check all that apply:**	Governmental

TOR1: DIAGNOSTIC METHODS

1. Did your laboratory perform diagnostic tests for the specified disease/topic for purposes such as disease diagnosis, screening of animals for export, surveillance, etc.? (Not for quality control, proficiency testing or staff training)

Yes

Diagnostic Test	Indicated in WOAH Manual (Yes/No)	Total number of test performed last year	
Indirect diagnostic tests		Nationally	Internationally
HAIT	Yes	1312	20
Direct diagnostic tests		Nationally	Internationally
Real-time RT-PCR M gene	Yes	832	0
Whole Genome Sequencing	Yes	22	0
Egg inoculation/HA	Yes	33	3
Cell Inoculation/HA	Yes	82	63
Henritzi Subtyping multiplex RT-PCR	Yes	23	0

TOR2: REFERENCE MATERIAL

2. Did your laboratory produce or supply imported standard reference reagents officially recognised by WOAH?

No

3. Did your laboratory supply standard reference reagents (nonWOAH-approved) and/or other diagnostic reagents to WOAH Members?

Yes

Type of reagent available	Related diagnostic test	Produced/ provide	Amount supplied nationally (ml, mg)	Amount supplied internationally (ml, mg)	No. of recipient WOAH Member Countries	Country of recipients
IAV-S antigen	HAIT	Produced & provided	21ml	0	1	IRELAND,

IAV-S antisera (pig and ferret)	HAIT	Produced & provided	2ml	0	1	IRELAND,

4. Did your laboratory produce vaccines?

No

5. Did your laboratory supply vaccines to WOAH Members?

TOR3: NEW PROCEDURES

6. Did your laboratory develop new diagnostic methods for the designated pathogen or disease?

No

7. Did your laboratory validate diagnostic methods according to WOAH Standards for the designated pathogen or disease?

No

8. Did your laboratory develop new vaccines for the designated pathogen or disease?

9. Did your laboratory validate vaccines according to WOAH Standards for the designated pathogen or disease?

TOR4: DIAGNOSTIC TESTING FACILITIES

10. Did your laboratory carry out diagnostic testing for other WOAH Members?

No

11. Did your laboratory provide expert advice in technical consultancies on the request of an WOAH Member?

Yes

Name of the WOAH Member Country receiving a technical consultancy	Purpose	How the advice was provided
AUSTRIA	Expert consultancy on design of ESFLU PT panel for IAV-S molecular detection and template for return of metadata and results	Email, Teams calls
DENMARK	Expert consultancy on design of ESFLU PT panel for IAV-S molecular detection and template for return of metadata and results	Email, Teams calls
FRANCE	Expert consultancy on design of ESFLU PT panel for IAV-S molecular detection and template for return of metadata and results	Email, Teams calls
GERMANY	Expert consultancy on design of ESFLU PT panel for IAV-S molecular detection and template for return of metadata and results	Email, Teams calls
ITALY	Expert consultancy on design of ESFLU PT panel for IAV-S molecular detection and template for return of metadata and results	Email, Teams calls
IRELAND	Expert consultancy and provision of reagents for serological assays. Advice on phylogenetic analysis and virus genotyping	Email, Teams calls

TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

12. Did your laboratory participate in international scientific studies in collaboration with WOAH Members other than the own?

Yes

Title of the study	Duration	Purpose of the study	Partners (Institutions)	WOAH Member Countries involved other than your country

ESFLU, the European swine influenza network funded by COST	2022-2026	Network of Excellence for swine influenza monitoring and addressing data gaps (global genetic diversity, appropriateness of diagnostic assays)	30 European countries.	
Centres of Excellence for Influenza Research and response (CEIRR)	2021-2029	Development of pipelines for evaluation of the emergence of swine influenza viruses of pre-pandemic or pandemic risk.	NIAID funded programme. APHA supported via interactions with RVC and the WIC (Crick Insititute), UK CEIRR Network (ceirr-network.org)https://www.niaid.nih.gov/research/centers-excellence-influenza-research-response	UNITED STATES OF AMERICA
OFFLU VCM	Ongoing annual	Swine viruses and antisera have been added to the WHO VCM activities and as such we have characterized isolates both using genetic and antigenic tools and contributed this to the biannual VCM activities.	OFFLU swine subgroup plus miscellaneous institutes	BELGIUM BRAZIL CANADA DENMARK FINLAND FRANCE GERMANY HUNGARY ITALY JAPAN SINGAPORE UNITED STATES OF AMERICA
ISIDORe	2024-2025	Investigation of infection and transmission of pandemic 2009 and pre-pandemic representative influenza A viruses in the ferret model	French National Veterinary School, Toulouse (ENVT)	FRANCE

13. In exercising your activities, have you identified any regulatory research needs* relevant for WOAH?

No

TOR6: EPIZOOLOGICAL DATA

14. Did your Laboratory collect epidemiological data relevant to international disease control?

Yes

If the answer is yes, please provide details of the data collected:

Investigations of pig farms in Great Britain (GB) were undertaken to clinically assess respiratory disease and where IAV-S was detected, to determine the within-herd disease dynamics and genetic diversity of circulating viruses. Circulation of unique clades in the UK make this of relevance to international disease reporting to ensure diagnostic tests remain fit-for-purpose for viruses detected in pig herds.

15. Did your laboratory disseminate epidemiological data that had been processed and analysed?

Yes

If the answer is yes, please provide details of the data collected:

APHA is a contributor to the ESFLU biannual report on IAV-S diversity in Europe that is also communicated to OFFLU for the VCM report. The most recent ESFLU report can be found at: European Swine Influenza Network Report #2 on Swine Influenza A Viruses Evolution and Diversity in Europe from October 2022 to September 2024 The most recent OFFLU VCM report can be found at: https://offlu.org/technical-activities/september-2025-swine-influenza/

16. What method of dissemination of information is most often used by your laboratory? (Indicate in the appropriate box the number by category and list the details in the box)

a) Articles published in peer-reviewed journals:

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Lean FZX, Herbert E, Van Diemen PM, Ramsay A, Mollett BC, Byrne AMP, Núñez A, Moin S, Crank M, Graham B, Kanekiyo M and Everett HE (2025). "Pathology and innate immune response correlates in influenza a virus vaccination-challenge model in domestic pigs." Journal of Comparative Pathology https://doi.org/10.1016/j.jcpa.2025.03.169
2. van Diemen PM, Lean FZX, Ramsay A, Mollett BC, Byrne AMP, Núñez A, Herbert E, Moin SM, Crank MC, Graham BS, Kanekiyo M and Everett HE (2025). "Evaluation of a nanoparticle influenza vaccine in the pig model." Vaccine https://doi.org/j.vaccine.2025.126844
3. Coggon A, Lopes S, Simon G, Arendsee Z, Chen K-F, Chiapponi C, Essen S, Everett H, Hervé S, Hufnagel David E, Mollett B, Moreno A, Pekosz A, Richard G, Rothman Richard E, Shaw-Saliba K, Van Reeth K, Venkatesh D, Brown Ian H, Anderson Tavis K, Baker Amy L and Lewis Nicola S (2025). "Quantifying the zoonotic risk profile of European influenza A viruses in swine from 2010 to 2020 inclusive." Journal of Virology https://doi.org/10.1128/jvi.00306-25

b) International conferences:

0

c) National conferences:

5

1. Prof Ashley Banyard- Virtual – Avian and swine influenza: Zoonotic risk. Invited lecturer- University of Sussex. 20th Mar 2025
2. Prof Ashley Banyard- Face to face – Zambian delegation: International Reference Laboratory activities on AIV, SwIAV and NDV. APHA Weybridge. 23rd May 2025
3. Prof Ashley Banyard- Face to face – Avian influenza and risks to pigs. Pig Veterinary Society, Nottingham. 5th Oct 2025
4. Prof Ashley Banyard- Face to face – International Reference Laboratory: Avian, Swine Influenza, Newcastle Disease. South American Bioinformatics Training Workshop on AIV, NDV and SwIAV. APHA, 13th Oct 2025
5. Dr. Helen Everett. Face-to-Face – "Diverse Genomic Landscape of Swine Influenza A Virus in England (2014–2021)." Influenza Update meeting, Warwick University, UK. 15-16 Dec 2025.

d) Other (Provide website address or link to appropriate information):

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4. Mollett BC, Byrne AM, Everett HE, Reid SM, Williamson S, Anderson TK, James J, Banyard AC, Brown IH and Lewis NS (2025). "Diverse Genomic Landscape of Swine Influenza A Virus in England (2014–2021)." bioRxiv https://doi.org/10.1101/2025.04.28.650978
5. Del Rosario JMM, van Diemen PM, Frost S, Vishwanath S, Sujit SB, Ashokan SK, Mollett BC, Ramsay AM, Benjamin Simpson B, Asbach B, Carnell GW, Chan A, Tonks P, Temperton NJ, Davies M, McCauley JW, Kinsley R, Wagner R, Everett HE and Heeney JL. "Immunogenicity and Efficacy of Digitally Immune Optimised H1N1 Vaccine Candidates in Swine and Murine Animal Models. " https://www.biorxiv.org/content/10.1101/2025.09.12.675937

TOR7: SCIENTIFIC AND TECHNICAL TRAINING

17. Did your laboratory provide scientific and technical training to laboratory personnel from other WOAH Members?

Yes

a) Technical visit : 0

b) Seminars : 0

c) Hands-on training courses: 4

d) Internships (>1 month) 0

Type of technical training provided (a, b, c or d)	Country of origin of the expert(s) provided with training	No. participants from the corresponding country
C	BRAZIL	1
C	URUGUAY	1
C	ARGENTINA	1
C	PARAGUAY	1

TOR8: QUALITY ASSURANCE

18. Does your laboratory have a Quality Management System?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)	
ISO 17025	PDF	UKAS Certificate dec 25 (1).pdf

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Haemagglutination Inhibition test	UKAS
Matrix (M)-gene PCR	UKAS
Virus isolation in SPF embryonated chicken eggs	UKAS

20. Does your laboratory maintain a "biorisk management system" for the pathogen and the disease concerned?

Yes

APHA maintains a complete and functioning laboratory biological risk management system which ensures that the laboratory operation complies with applicable local, national (UK Health and Safety Executive), regional and international standards and requirements for biosafety and laboratory biosecurity.

TOR9: SCIENTIFIC MEETINGS

21. Did your laboratory organise scientific meetings related to the pathogen in question on behalf of WOAH?

Yes

National/ International	Title of event	Co-organiser	Date	location	No. Participants
International	International Symposium of Avian Influenza	A Banyard (Scientific committee)	2025-06-02	Newfound- land, Canada	300
International	ESFLU 2026 conference committee and Core Lobby group for the continuation of ESFLU after completion of the COST Action in Nov 2026	Helen Everett	2025-10-14	Virtual	9

22. Did your laboratory participate in scientific meetings related to the pathogen in question on behalf of WOAH?

Yes

Title of event	Date	location	Role (speaker, presenting poster, short communications)	Title of the work presented
ESFLU Annual Meeting	2025-03-12	Copenhagen, Denmark	Attendee and Management Committee Meeting Participant	Round table discussion on sustainability of ESFLU after the end of COST funding in Nov 2026

TOR10: NETWORK WITH WOAH REFERENCE LABORATORIES

23. Did your laboratory exchange information with other WOAH Reference Laboratories designated for the same pathogen or disease?

Yes

24. Are you a member of a network of WOAH Reference Laboratories designated for the same pathogen?

Yes

NETWORK/DISEASE	ROLE OF YOUR LABORATORY (PARTICIPANT, ORGANISER, ETC)	NO. PARTICIPANTS	PARTICIPATING WOAH REF. LABS
			Instituto Zooprofilattico Sperimentale delle Venezie, Italy Auditora Fiscal Federal Agropecuária Laboratório de Diagnóstico Animal, Laboratório Federal de Defesa Agropecuária – LFDA/SP – CGAL, Brazil Animal and Plant Quarantine Agency, Ministry of Agriculture, Korea National Reference Laboratory for Avian Influenza and Newcastle Disease Federal State-

SWIV	OFFLU	3	Financed Institution "Federal Centre for Animal Health" (FGBI "ARRIAH"), Russia National Avian Influenza Reference Laboratory, Animal Influenza Laboratory of the Ministry of Agriculture, China Reference Laboratory for Veterinary Quality Control on Poultry Production, Animal Health Research Institute, Egypt Hokkaido University, Research Center for Zoonosis Control, Japan Indian Council of Agricultural Research (ICAR), National Institute of High Security Animal Diseases (NIHSAD), India Friedrich Loeffler Institute, Federal Research Institute for Animal Health, Germany Canadian Food Inspection AgencyNational Centre for Foreign Animal Disease, Canada CSIRO Australian Centre for Disease Preparedness SEPRL National Veterinary Services Laboratories, USDA, USA
SWIV	ESFLU	1	Istituto Zooprofilattico Sperimentale della Lombardia e dell'Emilia Romagna, Italy
SWIV	CEIRR Network	1	National Veterinary Services Laboratories, USDA, USA

25. Did you organise or participate in inter-laboratory proficiency tests with WOAH Reference Laboratories designated for the same pathogen during the past 2 years?

Yes

Purpose of the proficiency test:	Role of your Reference Laboratory (organiser/ participant)	No. participating Laboratories	Participating WOAH Ref. Labs/ organising WOAH Ref Lab
ESFLU Molecular testing PT panel (see below)	Organising Committee and Laboratory Participant	21	Italy

26. Did your laboratory collaborate with other WOAH Reference Laboratories for the same disease on scientific research projects for the diagnosis or control of the pathogen of interest?

Yes

Title of the project or contract	Scope	Name(s) of relevant WOAH Reference Laboratories
ESFLU WG1 (Diagnostic Methods)	Web Manual of Diagnostic Methods based on collated practical information from European Laboratories in development	Instituto Zooprofilattico Sperimentale delle Venezie, Italy
ESFLU training on antigenic cartography	Attended workshop	Instituto Zooprofilattico Sperimentale delle Venezie, Italy
OFFLU VCM	APHA has carried out testing and contributed reagents, data and expertise to the biannual WHO VCM activities	Instituto Zooprofilattico Sperimentale delle Venezie, Italy National Veterinary Services Laboratories, USDA, USA

TOR11: OTHER INTERLABORATORY PROFICIENCY TESTING

27. Did your laboratory organise or participate in inter-laboratory proficiency tests with laboratories other than WOAH Reference Laboratories for the same pathogen during the past 2 years?

Yes

Purpose for inter-laboratory test comparisons1	Role of your reference laboratory (organizer/participant)	No. participating laboratories	Name of the test	WOAH Member Countries
ESFLU Molecular testing PT panel	Organising Committee and Laboratory Participant	19	RT-PCR	AUSTRIA, BELGIUM, CROATIA, DENMARK, FINLAND, FRANCE, GERMANY, GREECE, IRELAND, ITALY, POLAND, SERBIA, SLOVENIA, SPAIN, SWEDEN, SWITZERLAND, THE NETHERLANDS, TURKEY, UNITED KINGDOM,

TOR12: EXPERT CONSULTANTS

28. Did your laboratory place expert consultants at the disposal of WOAH?

No

29. Additional comments regarding your report:

Yes

Dr Helen Everett is a contributor to the panel providing expert assessments to the WHO Tool for Influenza Pandemic Risk Assessment (TIPRA) framework for evaluation of animal influenza zoonotic risk. https://www.who.int/teams/global-influenza-programme/avian-influenza/tool-for-influenza-pandemic-risk-assessment-(tipra)