

# WOAH Reference Laboratory Reports Activities 2022

## Activities in 2022

This report has been submitted : 8 mars 2023 17:11

### Laboratory Information

<b>Name of disease (or topic) for which you are a designated WOAHO Reference Laboratory:</b>	Avian influenza
<b>Address of laboratory:</b>	Animal and Plant Health Agency – Weybridge, Addlestone, Surrey KT15 3NB UNITED KINGDOM
<b>Tel.:</b>	+44 208 206 9680
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<b>Website:</b>	<a href="https://www.gov.uk/government/organisations/animal-and-plant-health-agency">https://www.gov.uk/government/organisations/animal-and-plant-health-agency</a> <a href="https://science.vla.gov.uk/fluglobalnet/">https://science.vla.gov.uk/fluglobalnet/</a>
<b>Name (including Title) of Head of Laboratory (Responsible Official):</b>	Mr David Holdsworth, Chief Executive
<b>Name (including Title and Position) of WOAHO Reference Expert:</b>	Professor Ian Brown Director of WOAHO/FAO International Reference Laboratory for Avian Influenza, Newcastle Disease and Swine Influenza
<b>Which of the following defines your laboratory? Check all that apply:</b>	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 WOAHO Manual (Yes/No)	Total number of test performed last year	
Indirect diagnostic tests		Nationally	Internationally
HI	Yes	6,704	80

AGID	Yes	11,491	0
ELISA	Yes	0	0
Direct diagnostic tests		Nationally	Internationally
Real-time RT-PCR M gene	Yes	17,514	935
Real-time RT-PCR H5	Yes	442	231
Real-time RT-PCR H5 Pathotyping	Yes	21,163	691
H5 genetic analyses by Sanger sequencing	Yes	0	0
Real-time RT-PCR N5	Yes	0	1
Real-time RT-PCR N6	Yes	0	1
Real-time RT-PCR N7	Yes	0	1
Real-time RT-PCR N8	Yes	18	1
Real-time RT-PCR N9	Yes	0	1
Real-time RT-PCR N1	Yes	17,045	7
Real-time RT-PCR H7	Yes	459	231
H7 genetic analyses by Sanger sequencing	Yes	0	0
Next Generation Sequencing	Yes	764	757
Egg inoculation/HA	Yes	873	56
IVPI	Yes	0	0

## TOR2: REFERENCE MATERIAL

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

No

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

Yes

TYPE OF REAGENT AVAILABLE	RELATED DIAGNOSTIC TEST	PRODUCED/ PROVIDE	AMOUNT SUPPLIED NATIONALLY (ML, MG)	AMOUNT SUPPLIED INTERNATIONALLY (ML, MG)	NO. OF RECIPIENT WOA?H MEMBER COUNTRIES	COUNTRY OF RECIPIENTS
Antigen	HI	Provide	228 ml	431 ml	11	Africa America Asia and Pacific Europe
Antiserum	HI	Provide	6 ml	114 ml	11	Africa America Asia and Pacific Europe

4. Did your laboratory produce vaccines?

No

5. Did your laboratory supply vaccines to WOAHA Members?

No

## TOR3: NEW PROCEDURES

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

Yes

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

Yes

NAME OF THE NEW TEST OR DIAGNOSTIC METHOD DEVELOPED	DESCRIPTION AND REFERENCES (PUBLICATION, WEBSITE, ETC.)
Real-time RT-PCR (RRT-PCR) for the specific detection of AIV subtype H6 is validated and available for use as front-line diagnostic tools for avian influenza disease response and for wild bird surveillance in conjunction with the M-gene influenza A screening. Awaiting quality assurance to UKAS 17025 standard.	Manuscript in preparation
Optimised routine direct clinical samples obtained from avian influenza poultry and wild bird diagnostic cases. Continuing to develop and implement long-read sequencing capability.	Manuscript pre-print: Byrne, A. M., J. James, B. C. Mollett, S. M. Meyer, T. Lewis, M. Czepiel, A. H. Seekings, S. Mahmood, S. S. Thomas and C. S. Ross (2022). "Investigating the genetic diversity of H5 avian influenza in the UK 2020-2022." BioRxiv DOI: <a href="https://doi.org/10.1101/2022.12.03.518823">https://doi.org/10.1101/2022.12.03.518823</a>

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

No

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

No

## TOR4: DIAGNOSTIC TESTING FACILITIES

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

Yes

NAME OF WOAHA MEMBER COUNTRY SEEKING ASSISTANCE	DATE	WHICH DIAGNOSTIC TEST USED	NO. SAMPLES RECEIVED FOR PROVISION OF DIAGNOSTIC SUPPORT	NO. SAMPLES RECEIVED FOR PROVISION OF CONFIRMATORY DIAGNOSES
VIETNAM	2022-02-01		0	139
CAMBODIA	2022-02-01		0	52
BANGLADESH	2022-05-02		0	346
KUWAIT	2022-05-02		0	10
GUINEA	2022-06-06		6	0
KAZAKHSTAN	2022-07-04		0	1
VIETNAM	2022-08-08		0	103

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

Yes

NAME OF THE WOA MEMBER COUNTRY RECEIVING A TECHNICAL CONSULTANCY	PURPOSE	HOW THE ADVICE WAS PROVIDED
GHANA	Offer of Assistance	Email
ISRAEL	Offer of Assistance	Email
SOUTH AFRICA	Offer of Assistance	Email
VIETNAM	Offer of assistance & MOU	Email
OMAN	Offer of Twinning	Email/Formal correspondence through WOA and Oman Agriculture Ministry
BOTSWANA	Offer of assistance	Email
MALI	Offer of assistance & MOU	Email
GUINEA	Offer of assistance	Email
NAMIBIA	Offer of assistance	Email
ETHIOPIA	Offer of assistance	Email

## TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

12. Did your laboratory participate in international scientific studies in collaboration with WOA 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
Use of Stable Isotopes to Trace Bird Migrations and Molecular Nuclear Techniques to Investigate the Epidemiology and Ecology of the Highly Pathogenic Avian Influenza (Phase II). IAEA project code: D32034	2018-2023	To employ stable isotope analysis (SIA) to monitor the geographic origins of AIV-infected migratory birds which are infected with AIV, in particularly the clade 2.3.4.4 H5Nx HPAIVs which are currently epidemiologically important and have incurred from Asia to Europe and onwards into Africa in recent years.	The project is funded by the International Atomic Energy Agency (IAEA) Animal Production and Health Section. The partner labs include: Western University, London, Ontario, Canada (to do the SIA), but collection of wild bird specimens is sourced from partners in: Novosibirsk State University, Novosibirsk, Russian Federation University of Jos, Nigeria Agricultural, Medical and Industrial Research School (AMIRS-NSTRI), Karaj, Iran Institute for Diagnosis and Animal Health, Bucharest,	CANADA

			Romania APHA (UK) and FLI (Germany) have an AIV consultancy role, with the Leibniz Institute for Zoo and Wildlife Research (Berlin, Germany) providing similar consultancy for the SIA elements of the project.	
DELTA-FLU: Dynamics of avian influenza in a changing world	June 2017 – Nov 2022 (60 months but extended due to COVID pandemic)	DELTA-FLU aims to determine the key viral, host-related, and environmental factors that determine the dynamics of avian influenza (AI) in poultry and other host species, with the goal of improving prevention and control strategies against this disease	Friedrich-Loeffler-Institut (FLI), Germany Erasmus University Medical Center (EMC), Netherlands Istituto Zooprofilattico Sperimentale delle Venezie (IZSVe), Italy University of Ghent (UGENT), Belgium Roslin Institute, University of Edinburgh (UEDIN), United Kingdom Linnaeus University (LNU), Sweden University of Hong Kong (UHK), Hong Kong Southeast Poultry Research Laboratory, United States Department of Agriculture (SEPRL), United States Canadian Food Inspection Agency (CFIA), Canada	
One Health Poultry Hub	2019-2024	Hub researchers are characterising the networks through which chickens are produced and chickens and chicken products distributed to identify points of high disease risk as well as where and how interventions to mitigate disease risk are best made. Hub researchers are assessing how pathogens and genes can transmit between chickens and from chickens to people and back again - focusing in particular on how this is influenced by how chickens are kept and traded. This is vital information to inform potential interventions. <a href="https://www.onehealthpoultry.org">https://www.onehealthpoultry.org</a>	Our Hub is led by the Royal Veterinary College (RVC) London, and comprises partners in Asia, Europe and the UK. 27 partners in total. Key focus for programme Vietnam, India, Sri Lanka and Bangladesh	
UK Ministry of Defence		Establishing a West African network		

(MOD) Biothreat reduction programme (BTRP)	2022-2023 (potentially 2022-2026 funding dependent)	for laboratory capability in avian influenza and Newcastle disease virus: Developing capability and capacity to define disease burden.	APHA, various laboratories across West Africa	
Kazakhstan OIE Twinning on AI and ND	2019-2022 (project paused due to COVID and other factors; restart in 2023)	The Twinning Project's goal is to enhance the technical expertise and skills of the Candidate Institute's personnel and demonstrate that it possesses the competency required of an OIE reference laboratory for Avian Influenza and Newcastle disease.	Kazakh Scientific Research Veterinary Institute KazSRVI , Almaty, KZK	KAZAKHSTAN
Avian Flu Study in local production systems (HIVE)	2019-2022	Avian Influenza surveillance with relevance to food security in Africa	Coordinated with University of Surrey (Nigeria, Tanzania, Uganda, Ethiopia)	
OFFLU VCM	Ongoing annual	APHA has contributed, reagents, data and expertise to the biannual WHO VCM activities. During 2022 APHA currently held the chair for OFFLU VCM activities.	OFFLU network	
Development of a Central Asian hub for AI and NDV	2020-2022	Organisation of a workshop to evaluate the current burden of AI and NDV across Central Asia	Ministry of Defence and OIE	
Centers of Excellence for Influenza Research and response (CEIRR)	2021-2029	Development of pipelines for evaluation of the emergence of avian influenza viruses of pre-pandemic or pandemic risk.	NIAID funded programme. APHA supported via interactions with RVC and PennCEIRR. CEIRR Network (ceirr-network.org)	
Flu-Switch: Identification of factors driving the emergence and spread of avian influenza viruses with zoonotic potential	2023-2026	International coordination of research on infectious animal diseases (ICRAD) This project aims to identify the factors that contribute to the evolution of AIV pathogenicity in poultry, and subsequent increased zoonotic potential that shapes its host range with the goal of defining risk factors to crossing species barriers.	Roslin institute, Edinburgh, UK Friedrich-Loeffler-Institut, Insel, Riems; Animal and Plant Health Agency, Weybridge; Linnaeus University; Instituto Zooprofilattico Sperimentale delle Venezie; Ecole nationale vétérinaire de Toulouse	
Flu-Map: Understanding animal health threats from emerging H5 high pathogenicity avian influenza viruses	2022-2023	Biotechnology and Biosciences Research Council (BBSRC) and the Department for Environment, Food and Rural Affairs. This project targets this extreme emergence of HPAIV in the UK (and beyond), to improve our understanding of HPAIVs to help mitigate incursions and refine approaches to future prevention strategies.	APHA The Pirbright Institute Royal Veterinary College The Roslin Institute University of Cambridge Imperial College London University of Leeds University of Nottingham.	

Kappa-Flu: Ecology and biology of HPAIV H5	2023-2026	HORIZON-FARM2FORK aims at understanding the connectivity and dynamics of H5 HPAI in wild birds, poultry and the environment, including the impact of climate change.	Friedrich-Loeffler-Institut, Insel, Riems; Erasmus Universitair Medisch Centrum, Rotterdam; Animal and Plant Health Agency, Weybridge; Linnaeus University; Istituto Zooprofilattico Sperimentale delle Venezie; Royal Veterinary College, University of London; Swiss Ornithological Institute (SOI);
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## 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:

Collection and characterisation of a range of AIV samples including meta data within the UK and internationally to provide an epidemiological picture of the global disease spread.

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:

An analysis of the epidemiological data, collected nationally and internationally, was disseminated through governmental outputs, and in peer-reviewed publications, detailing the evolution of AIV and epidemiological picture of with relation to the globally situation.

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:

19

Alkie, T. N., S. Lopes, T. Hisanaga, W. Xu, M. Suderman, J. Koziuk, M. Fisher, T. Redford, O. Lung and T. Joseph (2022). "A threat from both sides: Multiple introductions of genetically distinct H5 HPAI viruses into Canada via both East Asia-Australasia/Pacific and Atlantic flyways." *Virus Evolution* 8(2): veac077 DOI: <https://doi.org/10.1093/ve/veac077>.

Banyard, A., F. Z. Lean, C. Robinson, F. Howie, G. Tyler, C. Nisbet, J. Seekings, S. Meyer, E. Whittard and H. F. Ashpitel (2022). "Detection of highly pathogenic avian influenza virus H5N1 clade 2.3.4.4b in great skuas in Great Britain." *Viruses* 14(2): 212 DOI:

<https://doi.org/10.3390/v14020212>.

Bhat, S., J. James, J.-R. Sadeyen, S. Mahmood, H. Everest, P. Chang, S. Walsh, A. M. Byrne, B. Mollett and F. Lean (2022). "Co-infection of chickens with H9N2 and H7N9 avian influenza viruses leads to emergence of reassortant H9N9 virus with increased fitness for poultry and enhanced zoonotic potential." *Journal of Virology* DOI: <https://doi.org/10.1128/jvi.01856-21>.

Brookes, S. M., K. L. Mansfield, S. M. Reid, V. Coward, C. Warren, J. Seekings, T. Brough, D. Gray, A. Núñez and I. H. Brown (2022). "Inursion of H5N8 high pathogenicity avian influenza virus (HPAIV) into gamebirds in England." *Epidemiol Infect* 150: e51 DOI: <https://doi.org/10.1017/S0950268821002740>.

Byrne, A. M., J. James, B. C. Mollett, S. M. Meyer, T. Lewis, M. Czepiel, A. H. Seekings, S. Mahmood, S. S. Thomas and C. S. Ross (2022). "Investigating the genetic diversity of H5 avian influenza in the UK 2020-2022." *BioRxiv* DOI: <https://doi.org/10.1101/2022.12.03.518823>.

Caliendo, V., N. S. Lewis, A. Pohlmann, S. R. Baillie, A. C. Banyard, M. Beer, I. H. Brown, R. A. M. Fouchier, R. D. E. Hansen, T. K. Lameris, A. S. Lang, S. Laurendeau, O. Lung, G. Robertson, H. van der Jeugd, T. N. Alkie, K. Thorup, M. L. van Toor, J. Waldenström, C. Yason, T. Kuiken and Y. Berhane (2022). "Transatlantic spread of highly pathogenic avian influenza H5N1 by wild birds from Europe to North America in 2021." *Scientific Reports* 12(1): 11729 DOI: <https://doi.org/10.1038/s41598-022-13447-z>.

Chand, M., W. Barclay, A. Byrne, A. Banyard, I. Brown, N. Ferguson, Y. Hall, B. Hallis, S. Hopkins and K. Hoschler (2022). Investigation into the risk to human health of avian influenza (influenza A H5N1) in England DOI: <https://doi.org/10.13140/RG.2.2.18145.58725>.

Edwards, K. M., J. Y. Siegers, X. Wei, A. Aziz, Y.-M. Deng, S. Yann, C. Bun, S. Bunnary, L. Izzard and M. Hak (2023). "Detection of Clade 2.3.4.4b Avian Influenza A(H5N8) Virus in Cambodia, 2021." *Emerging Infectious Diseases* 29(1): 170-174 DOI: <https://doi.org/10.3201/eid2901.220934>.

Falchieri, M., S. M. Reid, C. S. Ross, J. James, A. M. P. Byrne, M. Zamfir, I. H. Brown, A. C. Banyard, G. Tyler and E. Philip (2022). "Shift in HPAI infection dynamics causes significant losses in seabird populations across Great Britain." *The Veterinary record* 191(7): 294-296 DOI: <https://doi.org/10.1002/vetr.2311>.

Fujiwara, M., H. Auty, I. Brown and L. Boden (2022). "Assessing the Likelihood of High Pathogenicity Avian Influenza Inursion Into the Gamebird Sector in Great Britain via Designated Hatcheries." *Frontiers in veterinary science* 9 DOI: <https://doi.org/10.3389/fvets.2022.877197>.

James, J., S. Bhat, S. K. Walsh, K. H. M. Thusitha, J.-R. Sadeyen, P. Chang, J. E. Sealy, S. Mahmood, B. Mollett and M. J. Slomka (2022). "The origin of internal genes contributes to the replication and transmission fitness of H7N9 avian influenza virus." *Journal of Virology* DOI: <https://doi.org/10.1128/jvi.01290-22>.

James, J., A. H. Seekings, P. Skinner, K. Purchase, S. Mahmood, I. H. Brown, R. D. Hansen, A. C. Banyard and S. M. Reid (2022). "Rapid and sensitive detection of high pathogenicity Eurasian clade 2.3.4.4b avian influenza viruses in wild birds and poultry." *Journal of Virological Methods* DOI: <https://doi.org/10.1016/j.jviromet.2022.114454>.

Lean, F. Z. X., A. G. Vitores, S. M. Reid, A. C. Banyard, I. H. Brown, A. Núñez and R. D. E. Hansen (2022). "Gross pathology of high pathogenicity avian influenza virus H5N1 2021-2022 epizootic in naturally infected birds in the United Kingdom." *One Health* 14: 100392 DOI: <https://doi.org/10.1016/j.onehlt.2022.100392>.

Letsholo, S. L., J. James, S. M. Meyer, Byrne Alexander M. P., Reid, Scott M., T. B. Settypalli, S. Datta, L. Oarabile, O. Kemolatlhe, P. 4, Kgakgamatso T., B. R. Mafonko and T. J. Kgotele (2022). "Emergence of high pathogenicity avian influenza virus H5N1 clade 2.3.4.4b in wild birds and poultry in Botswana." *Viruses* 14: 2601 DOI: <https://doi.org/10.3390/v14122601>.

Liang, Y., C. K. Hjulsager, A. H. Seekings, C. J. Warren, F. Z. Lean, A. Núñez, J. James, S. S. Thomas, A. C. Banyard and M. J. Slomka (2022). "Pathogenesis and infection dynamics of high pathogenicity avian influenza virus (HPAIV) H5N6 (clade 2.3.4.4b) in pheasants and onward transmission to chickens." *Virology* DOI: <https://doi.org/10.1016/j.virol.2022.10.009>.



Oliver, I., J. Roberts, C. S. Brown, A. M. Byrne, D. Mellon, R. D. Hansen, A. C. Banyard, J. James, M. Donati and R. Porter (2022). "A case of avian influenza A (H5N1) in England, January 2022." *Eurosurveillance* 27(5): 2200061 DOI: <https://doi.org/10.2807/1560-7917.ES.2022.27.5.2200061>.

Patapiou, P., M. Slomka, A. Seekings, J. James, S. Thomas, S. Reid, R. Hansen, N. Lewis and A. Banyard (2022). "Avian influenza: a veterinary pathogen with zoonotic potential." *Journal of Medical Microbiology* 71(5) DOI: <https://doi.org/10.1099/jmm.0.001491>.

Pohlmann, A., K. Jacqueline, A. Fusaro, Z. Bianca, A. Banyard, I. Brown, A. Byrne, N. Beerens, Y. Liang and R. Heutink (2022). "Has epizootic become enzootic? Evidence for a fundamental change in the infection dynamics of highly pathogenic avian influenza in Europe, 2021." *mBio* DOI: <https://doi.org/10.1128/mbio.00609-22>.

Wade, D., A. Ashton-Butt, G. Scott, S. M. Reid, V. Coward, R. D. E. Hansen, A. C. Banyard and A. I. Ward (2022). "High pathogenicity avian influenza: Targeted active surveillance of wild birds to enable early detection of emerging disease threats." *Epidemiology and Infection*: 1-29 DOI: <https://doi.org/10.1017/S0950268822001856>.

#### b) International conferences:

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Speaker Event Title Date

Prof Ian Brown Merck podcast International Webinar, Virtual Avian Influenza emergence 23.02.2022

Prof Ian Brown WOAHE European Region Technical Conference, Sicily Vaccination against HPAI 04-06.10.2022

Prof Ian Brown IABS Vaccine Conference, Paris, France Options for vaccines for emergency use including Mass Applied Vaccines and Pharmaceutical intervention options available and what might be developed 24-26.10.2022

Dr Ashley C. Banyard Lead presenter for Ministry of Defence funded project to form a West African hub for AIV and NDV under a Bio-Threat Reduction (BTR) program 'Global aspects of Avian disease: Building capability in West Africa to define international threat (WAFFluNNet)' 18.01.2022

Dr Ashley C. Banyard Guest Lecturer for the ICAR sponsored Winter School on "Recent Molecular Approaches in Livestock and Poultry Disease Diagnosis", Online for the Department of Animal Biotechnology, Madras Veterinary College, Chennai, India- global audience 'Frontline diagnosis and research at APHA in the area of Influenza and Newcastle disease virus' 28.02.2022

Dr Ashley C. Banyard Online presentation for External consortia- Centre for Excellence for Influenza Research and Response (CEIRR) group- global audience 'Avian Influenza in the UK: 2020-2022' 14.03.22

Dr Ashley C. Banyard St George's Medical school, University of London- MSc course presentation 'Influenza and One Health' 18.03.22

Dr Ashley C. Banyard University of Sussex- MSc course presentation 'Frontline response to incursions of avian influenza in the UK and 'One Health' aspects of influenza outbreaks' 21.03.22

Dr Ashley C. Banyard Accepted presentation at the Microbiology Society Annual conference, Northern Ireland, Belfast. 'Incursion of high pathogenicity Eurasian clade 2.3.4.4b avian influenza virus into wild birds and poultry in the United Kingdom between 2020 and 2022' 08.04.22

Dr Ashley C. Banyard Invited speaker for Vietnamese trade delegation UK visit APHA: Diagnosis of Influenza virus (focussing on avian and swine influenza virus) 11.05.22

Dr Joe James 18th Negative Strand Viruses (NSV) Conference. Portugal 'H9N2-origin internal genes contribute to the fitness of zoonotic China-origin H7N9 and have the further potential to generate novel reassorted influenza A viruses' 15.06.22

Dr Ashley C. Banyard G6/G7 Veterinary conference 'Avian Influenza outbreak overview 2021/22' 31.06.22

Dr Ashley C. Banyard British Veterinary Poultry Association- Winter meeting 'In the eye of the storm? What does the coming winter hold for avian influenza in the UK?' 18.11.22

Dr Ashley C. Banyard and Dr Joe James Invited speakers- The Pirbright Institute- Agency collaboration meeting 'Avian influenza in the UK: Frontline outbreak response and reactive research at APHA' 25.11.22

Dr Joe James Options XI for the control of influenza conference. September 2022 – Presentation entitled "H9N2-origin internal genes contribute to the fitness of zoonotic China-origin H7N9 and have the further potential to generate novel reassorted influenza A viruses" 12.09.22

Dr Joe James 2022 IBTR Symposium Zoonotic influenza risks 26.10.2022

Dr Joe James BSLZnet4 Risk assessment of influenza A viruses 29.05.22

c) National conferences:

5

Prof Ian Brown National Poultry Health Welfare Group Conference Birmingham, UK Avian Influenza - the science of the virus; to include update on vaccination 13.07.2022

Prof Ian Brown European Society for Clinical Virology, Manchester, UK Zoonotic risk from Avian Influenza 08.09.2022

Prof Ian Brown Avian Science Day, Birmingham, UK Avian influenza: APHAs activities in mitigating threat to UK and ongoing research to address the unknowns 12.10.2022

Prof Ian Brown UKHSA Conference, Leeds, UK Largest UK avian influenza outbreak in birds 2021-2022: One Health response 18.10.2022

Prof Ian Brown Shaping the UK Poultry Industry of the Future, Newport UK Avian Influenza- a paradigm shift in risk 30-31.10.2022

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

1

Technical visit to Oman to assess suitability for WOAHP twinning project 6th- 10th June 2022 by Prof Ian Brown

## TOR7: SCIENTIFIC AND TECHNICAL TRAINING

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

Yes

a) Technical visit : 2

b) Seminars : 1

c) Hands-on training courses: 0

d) Internships (>1 month) 0

Type of technical training	Country of origin of the expert(s)	No. participants from the
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provided (a, b, c or d)	provided with training	corresponding country
A	Tajikistan	12
A	Sierra Leone	14
B	Multiple	N/A

## TOR8: QUALITY ASSURANCE

18. Does your laboratory have a Quality Management System?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)	
International Standard ISO/IEC 17025:2017	UKAS PDF	Quality Management System Certification.pdf

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Haemagglutination inhibition test	UKAS
AGIDT	UKAS
Matrix (M)-gene PCR	UKAS
H5 real-time PCR(HA2)	UKAS
H5 real-time PCR(Pathotyping)	UKAS
H7 real-time PCR (cleavage site)	UKAS
Real-time RT-PCR N5 to N9	UKAS
Next Generation Sequencing	UKAS
H7 real-time PCR (HA2)	UKAS
Avian influenza virus Sanger nucleotide sequencing	UKAS
Neuraminidase inhibition	UKAS
Virus isolation in goose eggs (via allantoic cavity)	UKAS
Virus isolation in SPF chicken eggs (via allantoic cavity)	UKAS
IVPI	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 is in compliance 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 WOA?

Yes

NATIONAL/ INTERNATIONAL	TITLE OF EVENT	CO-ORGANISER	DATE (MM/YY)	LOCATION	NO. PARTICIPANTS
International	OFFLU WHO VCM	OFFLU	2022-02-07		

International	OFFLU WHO VCM	OFFLU	2022-09-05		
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22. Did your laboratory participate in scientific meetings related to the pathogen in question on behalf of WOA?H?

Yes

Title of event	Date (mm/yy)	Location	Role (speaker, presenting poster, short communications)	Title of the work presented
WHO VCM for avian viruses	2022-02-07	Virtual	Nicola Lewis led on analytics and presented on behalf of OFFLU	AI OFFLU VCM report
WHO VCM for avian viruses	2022-09-05	Virtual	Nicola Lewis led on analytics and presented on behalf of OFFLU	AI OFFLU VCM report
OFFLU joint steering and executive committees	2022-04-04	Virtual	Ian Brown chaired Nicola Lewis -speaker	Standard agenda
OFFLU joint steering and executive committees	2022-11-07	Virtual	Ian Brown chaired Nicola Lewis -speaker	Standard agenda

## TOR10: NETWORK WITH WOA?H REFERENCE LABORATORIES

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

Yes

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

Yes

PURPOSE OF THE PROFICIENCY TESTS: 1	ROLE OF YOUR REFERENCE LABORATORY (ORGANISER/ PARTICIPANT)	NO. PARTICIPANTS	PARTICIPATING WOA?H REF. LABS/ ORGANISING WOA?H REF. LAB.
OFFLU lab harmonisation test	Participant	12	CSIRO, Australian Animal Health Laboratory, AAHL, Geelong, Australia Laboratório Nacional Agropecuário, LNA, Campinas, Brazil National Center for Foreign Animal Disease, Canada Friedrich Loeffler Institute, FLI, Riems, Germany National Institute of High Security Animal Diseases, ICAR, Bhopal, India Istituto Zooprofilattico Sperimentale delle Venezie, IZSV, Legnaro, Italy Research Center for Zoonosis Control, RCZC, Sapporo, Japan National Veterinary Services Laboratory, NVSL, Ames, USA Southeast Poultry Research Laboratory, SPRL, Athens, USA Laboratory C, undisclosed/confidential FGBl, Federal Centre for Animal Health, Russia

EURL Proficiency test	Participant	40	All EU members states, Belarus, Bosnia and Herzegovina, Montenegro, Norway, Russia, Serbia, Switzerland, North Macedonia, Turkey, Ukraine, UK
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25. Did you organise or participate in inter-laboratory proficiency tests with WOA Reference Laboratories designated for the same pathogen?

No

26. Did your laboratory collaborate with other WOA 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 WOA REFERENCE LABORATORIES
Production of data for use at WHO VCM meeting (February and September)	Produced antigenic and genetic data to inform candidate vaccine preparedness for protecting human health.	APHA-Weybridge; Friedrich Loeffler Institute, Riems, Germany; Istituto Zooprofilattico Sperimentale delle Venezie, IZSve, Legnaro, Italy; CSIRO, Australian Animal Health Laboratory, AAHL, Geelong, Australia; National Veterinary Services Laboratory, NVSL, Ames, USA
Avian influenza antigenic matching (AIM)	Produced antiserum and antigens and used to generate antigenic and genetic data to inform candidate	IZSVE and FAO WOA/FAO (OFFLU) Francis Crick Institute

## TOR11: OTHER INTERLABORATORY PROFICIENCY TESTING

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

Yes

Purpose for inter-laboratory test comparisons <sup>1</sup>	Role of your reference laboratory (organizer/participant)	No. participating laboratories	Region(s) of participating WOA Member Countries
PT exercise (extended to other WOA member countries) Conventional and molecular panels for NRLs	Organiser	21	Africa Asia and Pacific Europe

## TOR12: EXPERT CONSULTANTS

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

Yes

KIND OF CONSULTANCY	Location	SUBJECT (FACULTATIVE)
OFFLU meetings to develop and apply strategic programme of work	Virtual	
Provision of data to the WHO Vaccine		

Composition Meeting; attendance at OFFLU coordination teleconferences, provision of advice and laboratory data as part of the OFFLU dossier for submission for VCM (February and September meetings). Leading OFFLU representation at September WHO VCM meeting.

Virtual

29. Additional comments regarding your report: