# OIE Reference Laboratory Reports Activities

## *Activities in 2019*

### This report has been submitted : 2020-01-15 19:35:25

| | |
|---|---|
| **Name of disease (or topic) for which you are a designated OIE Reference Laboratory:** | Swine influenza |
| **Address of laboratory:** | Animal and Plant Health Agency – Weybridge, Addlestone, Surrey KT15 3NB UNITED KINGDOM |
| **Tel.:** | +44 208 206 9680 |
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| **E-mail address:** | Ian.Brown@apha.gov.uk |
| **Website:** | https://www.gov.uk/government/organisations/animal-and-plant-health-agency https://science.vla.gov.uk/fluglobalnet/ |
| **Name (including Title) of Head of Laboratory (Responsible Official):** | Mr Christopher Hadkiss, Chief Executive |
| **Name (including Title and Position) of OIE Reference Expert:** | Professor Ian Brown Director of OIE/FAO International Reference Laboratory for Avian Influenza, Newcastle Disease and Swine Influenza |
| **Which of the following defines your laboratory? Check all that apply:** | Governmental |

### *ToR 1: To use, promote and disseminate diagnostic methods validated according to OIE Standards*

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 OIE Manual (Yes/No) | Total number of test performed last year | |
|---|---|---|---|
| Indirect diagnostic tests | | Nationally | Internationally |
| 0 | 0 | 0 | 0 |
| Direct diagnostic tests | | Nationally | Internationally |
| Real-time RT-PCR M gene | Yes | 893 | 0 |
| Real-time RT-PCR pH1N1 2009 | Yes | 86 | 0 |
| Next Generation Sequencing | No | 8 | 0 |
| HI | Yes | 762 | 89 |
| Egg inoculation/HA | Yes | 32 | 24 |

### *ToR 2: To develop reference material in accordance with OIE requirements, and implement and promote the application of OIE Standards.*
### *To store and distribute to national laboratories biological reference products and any other reagents used in the diagnosis and control of the designated pathogens or disease.*

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

No

3. Did your laboratory supply standard reference reagents (non OIE-approved) and/or other diagnostic reagents to OIE Member Countries?

No

4. Did your laboratory produce vaccines?

No

5. Did your laboratory supply vaccines to OIE Member Countries?

No

## *ToR 3: To develop, standardise and validate, according to OIE Standards, new procedures for diagnosis and control of the designated pathogens or diseases*

6. Did your laboratory develop new diagnostic methods validated according to OIE Standards for the designated pathogen or disease?

Yes

7. Did your laboratory develop new vaccines according to OIE Standards for the designated pathogen or disease?

No

| Name of the new test or diagnostic method or vaccine developed | Description and References (Publication, website, etc.) |
|---|---|
| Detection of pandemic 2009 H1 virus by real-time RT-PCR (RRT-PCR) | A modified version of the H1-118 RRT-PCR is being evaluated along with a WHO primers/probe set for enhanced detection of pandemic 2009 virus in clinical samples submitted via the swine influenza international surveillance programmes. Preliminary data suggests that these modified sets will improve the diagnostic sensitivity for detection of pandemic 2009 in pigs. |

## *ToR 4: To provide diagnostic testing facilities, and, where appropriate, scientific and technical advice on disease control measures to OIE Member Countries*

8. Did your laboratory carry out diagnostic testing for other OIE Member Countries?

No

9. Did your laboratory provide expert advice in technical consultancies on the request of an OIE Member Country?

Yes

| Name of the OIE Member Country receiving a technical consultancy | Purpose | How the advice was provided |
|---|---|---|
| HUNGARY | Proficiency Tests | Email |
| NORWAY | HI test on swine serum | Email |
| THE NETHERLANDS | Supply of SIV sera for Thermo Fisher | Email |
| PHILIPPINES | Potential collaboration | Email |
| SRI LANKA | Testing of swine samples for confirmation of swine influenza | Email |

### *ToR 5: To carry out and/or coordinate scientific and technical studies in collaboration with other laboratories, centres or organisations*

10. Did your laboratory participate in international scientific studies in collaboration with OIE Member Countries other than the own?

Yes

| Title of the study | Duration | Purpose of the study | Partners (Institutions) | OIE Member Countries involved other than your country |
|---|---|---|---|---|
| International swine Influenza Network | 2019 | Supported by IDT, Germany | FLI, Riems, Germany; DTU, Copenhagen, Denmark; CReSA, Barcelona, Spain; ANSES, Ploufragan, France; IZSVe, Padua, Italy; APHA, Weybridge, UK; IDT, Dessau, Germany | DENMARK FRANCE GERMANY ITALY SPAIN |
| Characterization of the Evolution of Influenza A Viruses (IAV) in Swine | 2018-2021 | Evaluation of swine isolates through a pipeline of activities from sampling in the field through to both genetic and antigenic characterisation using cartographical methods. | Funder: National Institute of Allergy and Infectious Diseases Centers of Excellence for Influenza Research and Surveillance (CEIRS) Program 9258-9553-4699/ HHSN27229149999 through a US Department of Agriculture award 59-5030-9-001F | |
| Population Immunity assessed by Antibody Landscaping as defined by antigenic evolution of Influenza A Viruses (IAV) in swine. | 2016-2020 | Mapping virus changes | Funder: US Department of Agriculture 58-5030-8-071F | 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 characterised isolates both using genetic and antigenic tools and contributed this to the biannual VCM activities. | OFFLU swine subgroup plus miscellaneous institutes | |

## *ToR 6: To collect, process, analyse, publish and disseminate epizootiological data relevant to the designated pathogens or diseases*

11. Did your Laboratory collect epizootiological data relevant to international disease control?

Yes

| If the answer is yes, please provide details of the data collected: |
| --- |
| Laboratory Reports and OFFLU outputs |

12. Did your laboratory disseminate epizootiological data that had been processed and analysed?

Yes

| If the answer is yes, please provide details of the data collected: |
| --- |
| Laboratory Reports and OFFLU outputs |

**13. What method of dissemination of information is most often used by your laboratory? (Indicate in the appropriate box the number by category)**

a) Articles published in peer-reviewed journals: 4
1. Helen Everett, Mario Aramouni, Vivien Coward, Andrew Ramsay, Michael Kelly, Sophie Morgan, Elma Tchilian, Laetitia Canini, Mark E Woolhouse, Sarah Gilbert, Bryan Charleston, Ian H Brown, Sharon M Brookes, (2019). Vaccine-mediated protection of pigs against infection with pandemic H1N1 2009 swine influenza A virus, Vaccine; Volume 37, Issue 17, pp. 2288-2293; https://doi.org/10.1016/j.vaccine.2019.02.078

2. Laetitia Canini; Helen Everett; Mario Aramouni; Vivien Coward; Andrew Ramsay; Michael D Kelly; Sophie Morgan; Elma Tchilian; Sarah Gilbert; Bryan Charleston; Ian H Brown; Sharon M Brookes; Mark E Woolhouse (2019) Statistical modelling of data showing pandemic H1N1 2009 swine influenza A virus infection kinetics in vaccinated pigs, Data in brief; Volume 27, December 2019 , article no 104576, DOI: 10.1016/j.dib.2019.104576

3. Santos, J. J. S., Abente, E. J., Obadan, A. O., Thompson, A. J., Ferreri, L., Geiger, G., Gonzalez-Reiche, A. S., Lewis, N. S., Burke, D. F., Rajao, D. S., Paulson, J. C., Vincent, A. L. and Perez, D. R. (2019) 'Plasticity of Amino Acid Residue 145 Near the Receptor Binding Site of H3 Swine Influenza A Viruses and Its Impact on Receptor Binding and Antibody Recognition', J Virol, 93(2)

4. Bolton, M.J., Abente, E.J., Venkatesh, D., Stratton, J.A., Zeller, M., Anderson, T.K., Lewis, N.S. and Vincent, A.L. (2019) ‘Antigenic evolution of H3N2 influenza A viruses in swine in the United States from 2012 to 2016’ Influenza Other Respir Viruses, 13(1), pp. 83-90

b) International conferences: 4
1. Helen E. Everett, Pauline M. van Diemen, Alexander Byrne, Andrew Ramsay, Samantha Watson, Alejandro Nunez, Ana v Moreno, Chiara Chiapponi, Emanuela Foni, Sharon M. Brookes and Ian H. Brown (2019), Assessement of zoonotic transmission of swine influenza A viruses from pigs to naïve or vaccinated ferrets. Options for the Control of Influenza Conference; Singapore, 28th Aug- 1st Sept 2019.

2. Brookes, S., Reid, S., Lewis, N., Chepkwony, S., Russell, C., Cooper J., Coward, V., Everett, H., Coney, E., Byrne, A., Parys, A., Vandoorn, E., Byrne, D., Williamson, S., Van Reeth, K., Brown, I., 2019. Swine influenza A viruses with zoonotic potential – PCR HA/NA typing, and differential detection of pandemic09 reassortants in GB and European pigs. Oral presentation at the Microbiology Society Annual Conference, 8-11 April 2019, Belfast

3. Chapkwony, S., Parys, A., Brookes, S., Lewis, N., Vandoorn, E.,Stadejek, W., Everett, H., Reid, S., Brown, I., Van Reeth, K. Antigenic and genetic evolution of H1 swine influenza viruses isolated in Belgium and the Netherlands between 2014 and 2019. Abstract submitted on 8th November 2019 for presentation at the 7th Annual BELVIR Meeting, 19 December 2019, Brussels, Belgium.

Nicola Lewis participated in following, covering a range of topics on SI epidemiology and ecology, antigentic characterisation and pandemic preparedness:
1. May 2019: Invited speaker at the 4th International Influenza Network meeting in Utrecht, sponsored by IDT. European swine influenza virus evolution

c) National conferences: 1
Benjamin C. Mollett, Alexander M.P. Byrne, Pauline M. van Diemen, Vanessa Ceeraz, Chiara Chiapponi, Emanuela Foni, Sharon M. Brookes, Ian H. Brown and Helen E. Everett. Methods for Influenza D virus detection in bovine and porcine clinical samples. AVTRW Annual Conference, Edinburgh 16th – 17th September 2019

d) Other:
(Provide website address or link to appropriate information) 1
https://science.vla.gov.uk/fluglobalnet/

## *ToR 7: To provide scientific and technical training for personnel from OIE Member Countries*
## *To recommend the prescribed and alternative tests or vaccines as OIE Standards*

14. Did your laboratory provide scientific and technical training to laboratory personnel from other OIE Member Countries?

No

## *ToR 8: To maintain a system of quality assurance, biosafety and biosecurity relevant for the pathogen and the disease concerned*

15. Does your laboratory have a Quality Management System?

Yes

| Quality management system adopted | Certificate scan (PDF, JPG, PNG format) |
|---|---|
| ISO17025 | UKAS certificate 2019.pdf |

16. 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 |
| H1-118 (pdm09) real-time PCR | UKAS |
| Virus isolation in SPF eggs | UKAS |

17. Does your laboratory maintain a “biorisk management system” for the pathogen and the disease concerned?

Yes

*(See Manual of Diagnostic Tests and Vaccines for Terrestrial Animals, Chapter 1.1.4)*

## *ToR 9: To organise and participate in scientific meetings on behalf of the OIE*

18. Did your laboratory organise scientific meetings on behalf of the OIE?

No

19. Did your laboratory participate in scientific meetings on behalf of the OIE?

Yes

| Title of event | Date (mm/yy) | Location | Role (speaker, presenting poster, short communications) | Title of the work presented |
|---|---|---|---|---|
| OFFLU swine group meeting | Feb 2019 | Paris | Presenter | Detailed antigenetic characterisation |

## *ToR 10: To establish and maintain a network with other OIE Reference Laboratories designated for the same pathogen or disease and organise regular inter-laboratory proficiency testing to ensure comparability of results*

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

Yes

21. Was your laboratory involved in maintaining a network with OIE Reference Laboratories designated for the same pathogen or disease by organising or participating in proficiency tests?

No

22. Did your laboratory collaborate with other OIE 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 OIE Reference Laboratories |
|---|---|---|
| Novel reassortant evolution and subtype rate detections | Discussion of novel reassortant evolution and subtype rate detections | OIE ref lab in Brescia |

## *ToR 11: To organise inter-laboratory proficiency testing with laboratories other than OIE Reference Laboratories for the same pathogens and diseases to ensure equivalence of results*

23. Did your laboratory organise or participate in inter-laboratory proficiency tests with laboratories other than OIE Reference Laboratories for the same disease?

No

*Note: See Interlaboratory test comparisons in: Laboratory Proficiency Testing at: http://www.oie.int/en/our-scientific-expertise/reference-laboratories/proficiency-testing see point 1.3*

## *ToR 12: To place expert consultants at the disposal of the OIE*

24. Did your laboratory place expert consultants at the disposal of the OIE?

No

25. Additional comments regarding your report:

N/A