This report has been submitted: 2017-02-16 16:10:14

| Name of disease (or topic) for which you are a designated OIE Reference Laboratory: | Swine influenza |
| Address of laboratory: | New Haw, Addlestone Surrey KT15 3NB Weybridge UNITED KINGDOM |
| Tel.: | +44-1932 35 73 39 |
| Fax: | +44-1932 35 72 39 |
| E-mail address: | ian.brown@apha.gsi.gov.uk |
| Website: | https://www.gov.uk/government/organisations/animal-and-plant-health-agency |
| 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 EU/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

<table>
<thead>
<tr>
<th>Diagnostic Test</th>
<th>Indicated in OIE Manual (Yes/No)</th>
<th>Total number of test performed last year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Nationally</td>
</tr>
<tr>
<td>Indirect diagnostic tests</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Direct diagnostic tests</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Real-time RT-PCR M gene</td>
<td>Yes</td>
<td>531</td>
</tr>
<tr>
<td>Real-time RT-PCR pH1N1 2009</td>
<td>Yes</td>
<td>54</td>
</tr>
</tbody>
</table>

**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

<table>
<thead>
<tr>
<th>Name of the new test or diagnostic method or vaccine developed</th>
<th>Description and References (Publication, website, etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simplex rtRT-PCR assays for detection of H1 (H1av and H1hu), or H3, and duplex assays for detection of N1 (N1av) or N2</td>
<td>Consortia of European institutes. A suite of real-time RT-PCR (rRT-PCR) have been evaluated for improved the sensitivity and speed of swIAV sub-typing. Simplex rRT-PCR assays for detection of H1 (H1av and H1hu), or H3, and duplex assays for detection of N1 (N1av) or N2 were successfully evaluated on egg-amplified viruses to achieve sensitive and specific identification of HA and NA genes of swIAVs from enzootic European lineages. Their performance was then assessed directly on clinical field material from which no live swIAV had been isolated.</td>
</tr>
<tr>
<td>Real time PCR to detect influenza A NP gene</td>
<td>An rRT-PCR to specifically detect the nucleoprotein (NP) internal gene of pdm09 virus has been developed to distinguish between conventional H1N2 and reassortant rH1N2 swIAVs. This rRT-PCR will provide added value for influenza A surveillance in the UK by building on the sub-typing rRT-PCR protocols to differentiate between the conventional H1N2 swIAVs and the reassortant rH1N2s</td>
</tr>
</tbody>
</table>

**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
<table>
<thead>
<tr>
<th>Name of the OIE Member Country receiving a technical consultancy</th>
<th>Purpose</th>
<th>How the advice was provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNITED KINGDOM</td>
<td>Swine influenza detection by RT-PCR (to Northern Ireland)</td>
<td>Email</td>
</tr>
</tbody>
</table>

**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
<table>
<thead>
<tr>
<th>Title of the study</th>
<th>Duration</th>
<th>Purpose of the study</th>
<th>Partners (Institutions)</th>
<th>OIE Member Countries involved other than your country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subtyping PCR</td>
<td>1 year</td>
<td>To evaluate new methodology for subtyping swine influenza virus</td>
<td>ANSES (France), CVI (Netherlands), DTU (Denmark), FLI (Germany), IZSLER, Italy, SVA (Sweden)</td>
<td>DENMARK FRANCE SWEDEN THE NETHERLANDS</td>
</tr>
<tr>
<td>International nomenclature for classification of HI SIV</td>
<td>1 year</td>
<td>To develop a universal standard based on phylogeny of HI HA Anderson TK, Macken CA, Lewis NS, Scheuermann RH, Van Reeth K, Brown IH, Swenson SL, Simon G, Saito T, Berhane Y, Ciacci-Zanella J, Pereda A, Davis CT, Donis RO, Webby RJ, Vincent AL. 2016. A phylogeny based global nomenclature system and automated annotation tool for H1 hemagglutinin genes from swine influenza A viruses. mSphere 1(6):e00275-16. doi:10.1128/mSphere.00275-16.</td>
<td>USDA-ARS (USA), University of Auckland (New Zealand), University of Cambridge (UK), J Craig Venter Institute (USA), University of California (USA), Ghent University (Belgium), USDA-APHIS (USA), ANSES (France), National Agriculture and Food Research Organisation (Japan), National Centre for Foreign Animal Disease (Canada), Animal Health and Genetic Laboratory (Brazil), Instituto Patobiologica (Argentina), Centers for Disease Control and Prevention (USA), Department of Infectious Diseases (USA)</td>
<td>ARGENTINA BELGIUM BRAZIL CANADA FRANCE JAPAN NEW ZEALAND UNITED KINGDOM UNITED STATES OF AMERICA</td>
</tr>
</tbody>
</table>
Global antigenic diversity of swine influenza viruses


**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

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

Yes

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: 7

Hemmingk, J., Morgan, S., Aramouni, M., Everett, H., Salguero, F. J., Canini, L., Porter, E., Chase-Topping, M., Beck, K., Mac Loughlin, R., Carr, V. B., Brown, I. H., Bailey, M., Woolhouse, M., Brookes, S., Charleston, B. and Tchilian, E. Distinct immune responses and virus shedding in pigs following aerosol, intra-nasal and contact infection with...


Hicks, D.J., Kelly, M., Brookes, S.M., Londt, B.Z., Ortiz Pelaez, A., Orlowska, A., Brown, I.H., Spencer, Y.I., Nunez, A., 2016. Cytokine Expression at Different Stages of Influenza A(H1N1)pdm09 Virus Infection in the Porcine Lung, Using Laser Capture Microdissection. Transboundary and Emerging Diseases Vol. 63, No. 1 (February 2016) p1-113


b) International conferences: 6


H. Everett, B. Nash, V. Coward, M. Kelly, S. Watson, A. Nunez and S. Brookes. Infection of ferrets and pigs with H1N2r, a reassortant swine influenza A virus containing genes from pandemic (H1N1) 2009 and swine subtype H1N2 viruses. Rapid Oral Poster Presentation at Options IX for the Control of Influenza, 24th-28th August 2016, Chicago, USA.


B. Nash, V. Coward, H. Everett and S. Brookes. Infection and transmission of a swine H1N2r Influenza A virus in pigs and ferrets. Young Antigone meeting, 18th-20th September 2016, Cambridge, UK.

c) National conferences: 1


d) Other: (Provide website address or link to appropriate information) 0
**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 certified according to an International Standard?

Yes

<table>
<thead>
<tr>
<th>Quality management system adopted</th>
<th>Certificate scan (PDF, JPG, PNG format)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UKAS ISO/IEC 17025:2005</td>
<td>Copy of UKAS certificate.pdf</td>
</tr>
</tbody>
</table>

16. Is your laboratory accredited by an international accreditation body?

Yes

<table>
<thead>
<tr>
<th>Test for which your laboratory is accredited</th>
<th>Accreditation body</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haemagglutination inhibition test</td>
<td>UKAS</td>
</tr>
<tr>
<td>Matrix (M)-gene PCR</td>
<td>UKAS</td>
</tr>
<tr>
<td>H1-118 (pdm09) real-time PCR</td>
<td>UKAS</td>
</tr>
<tr>
<td>Virus isolation in SPF eggs</td>
<td>UKAS</td>
</tr>
</tbody>
</table>

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

No

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?

No

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
No

25. Additional comments regarding your report: