



# OFFLU Annual Report 2018

In 2018, avian influenza (AI) outbreaks continued to threaten both animal health and public health worldwide. More than 40 countries of the Asian, African, European, Middle Eastern and American Regions experienced highly pathogenic avian influenza (HPAI) outbreaks during 2018 including strains of HPAI of H5 goose/Guangdong/1996 lineage (H5N1, H5N2, H5N6, H5N8) in several countries, as well as poultry-adapted viruses H7N3 in Mexico and Anhui/2013 lineage H7N9.

In response to these outbreaks, the OFFLU network experts participated in numerous teleconferences and meetings to share epidemiological and experimental data and diagnostic protocols needed to inform surveillance and control policies and build technical partnerships with Member Countries. OFFLU and WHO were in regular communication to share public health and animal health data so that risk assessments could be continually updated and to establish consensus on issues related to the animal-human interface, including pandemic preparedness.

## Contribution of animal influenza data for pandemic preparedness

Every six months OFFLU coordinates inputs from OIE/FAO Reference Centres and national veterinary laboratories to provide animal influenza virus data for consideration during the WHO Vaccine Composition Meeting (VCM). These data are needed to update pre-pandemic candidate vaccine viruses for human vaccines against zoonotic viruses of concern, and to contribute to the WHO biannual report of “[Antigenic and genetic characteristics of zoonotic influenza viruses and development of candidate vaccine viruses for pandemic preparedness.](#)”

During the February and September 2018 WHO influenza VCM consultations, sequence data for over 300 H5, H7, and H9 viruses were contributed by OFFLU network experts representing 36 countries in Europe, Asia, Middle East, Africa, Oceania, and the Americas.

Antigenic data generated by the haemagglutination inhibition (HI) assay using WHO-CC and OFFLU ferret-origin reagents was contributed by selected OFFLU reference laboratories namely Istituto Zooprofilattico Sperimentale delle Venezie in Italy

(IZSVe), Australian Animal Health Laboratory (AAHL) and the Animal and Plant Health Agency in the UK (APHA).

The OFFLU VCM team would like to specifically acknowledge the involved OFFLU network laboratories and Member Countries for their significant contribution of animal influenza virus data to help inform decisions impacting public health during the year 2018.

Given the success of this mechanism, the OIE, FAO and WHO have signed a new agreement allowing the extension of their cooperation on the contribution of animal health data to the WHO human influenza vaccine virus selection process for an additional period of five years from January 2019 to December 2023.

[http://www.offlu.net/fileadmin/home/en/human-animal-interface/pdf/OFFLU\\_public\\_report\\_VCM\\_Feb2018.pdf](http://www.offlu.net/fileadmin/home/en/human-animal-interface/pdf/OFFLU_public_report_VCM_Feb2018.pdf)

[http://www.offlu.net/fileadmin/home/en/human-animal-interface/pdf/OFFLU\\_POST\\_VCM\\_REPORT\\_2018Nov\\_.pdf](http://www.offlu.net/fileadmin/home/en/human-animal-interface/pdf/OFFLU_POST_VCM_REPORT_2018Nov_.pdf)

## OFFLU technical meeting

In 2018, it was particularly productive to be able to bring together the OFFLU experts along with other influenza researchers and students for an OFFLU Technical Meeting. The meeting took place in April 2018 in conjunction with the 10th International Symposium on Avian Influenza and 4th International Symposium on Neglected Influenza Viruses at Brighton, UK and was kindly facilitated by the organisers of the symposium. Around 100 animal influenza scientists participated in this meeting.

During the plenary discussion, the OFFLU experts reported on the outputs of various OFFLU technical activities, including WHO Vaccine Composition Meeting contributions, proficiency

testing results, avian influenza, swine influenza, equine influenza and wild bird group and human-animal interface activities.

A break out group session was conducted for each technical activity (avian, swine, equine, wild bird and applied epidemiology) to brain storm what priority activities need to be undertaken in the next one to three years. Each technical group of experts developed a workplan with action items to pursue and will serve as a guidance to maintain the core functionality of the network objectives.

<http://www.offlu.net/index.php?id=381>

## OFFLU proficiency testing

The OFFLU Influenza A PCR panel for the 2018 proficiency testing programme was received by ten international OFFLU reference or contributor laboratories and was designed to assess the capability of the laboratories to detect and characterise isolates of avian influenza. The round was coordinated by the Australian Animal Health Laboratory (AAHL) and conducted under their ISO 17043 accreditation. The panel consisted of 15 inactivated (gamma irradiated), allantoic fluid samples sent to each participating laboratory with instructions to test the samples using their standard diagnostic matrix PCR assay. Any positive samples were to be tested for H5 and H7 using the participants' standard molecular method (either real time or conventional) and for molecular pathogenicity (HA cleavage site sequence) analysis, as appropriate. Samples were derived from Australia, Europe, or the Asian region and so gave many participants an opportunity to test for strains of AI not usually encountered.

## Guidance on Influenza A cleavage sites

OFFLU experts updated a guidance document that provides information regarding amino acid sequences at the influenza A cleavage sites for assistance in differentiation of low pathogenicity and high pathogenicity AI viruses through molecular analyses, as described in the OIE *Terrestrial Animal Health Code*. This document included molecular sequences for multibasic cleavage sites of H5N1 HPAI viruses from Asia, Africa and Europe; previously reported multibasic cleavage sites of other HPAI viruses (H5 and H7); and a list of unusual 2-

## OFFLU Swine influenza virus group activities

An OFFLU swine influenza Latin America regional meeting was organized in conjunction with the XXIX Congresso Brasileiro de Virologia, Gramado, RS, Brazil, in October 2018. The swine influenza experts from Argentina, Brazil, Colombia, Guatemala, Chile and USA participated in this meeting. The experts shared data about the swine influenza situation in pig populations by providing regional and country-specific reports and updates on recent swine influenza virus research activities.

The participating laboratories returned the testing results to AAHL, Australia for analysis and the results were shared with the laboratories.

OFFLU conducts these proficiency testing rounds in support of the laboratories to facilitate international harmonization of testing capability and the proficiency test panel was designed to be challenging to allow laboratories the opportunity to fine tune their diagnostic capability. Laboratories with results divergent from the expected will investigate the causes as required under their quality assurance system accreditation and can be helped in this by requesting more specimen, if needed.

[http://www.offlu.net/fileadmin/home/en/meeting-reports/pdf/OFFLU\\_Brighton/offlu\\_AAHL-PT\\_2018\\_CWVaugh.pdf](http://www.offlu.net/fileadmin/home/en/meeting-reports/pdf/OFFLU_Brighton/offlu_AAHL-PT_2018_CWVaugh.pdf)

3 residue multibasic cleavage sites. The document was updated in January 2018 taking into account the reported HPAI outbreaks. Considering the importance of this information, the document has been referred to in the updated avian influenza chapter of the OIE *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals*.

[http://www.offlu.net/fileadmin/home/en/resource-centre/pdf/Influenza\\_A\\_Cleavage\\_Sites.pdf](http://www.offlu.net/fileadmin/home/en/resource-centre/pdf/Influenza_A_Cleavage_Sites.pdf)

The experts worked out various tasks and action points to follow up including sharing the list of sera, viruses and diagnostic reagents available from each laboratory, harmonize diagnostic methods, produce antisera raised in pigs of each country, cartography analysis, training, publishing paper on phylogeny and sequence analysis. The experts agreed for the next regional meeting to be held during the 8th International Symposium on Emerging and Reemerging Diseases of Pigs (ISERPD) at Chile in June 2019.

<http://www.offlu.net/index.php?id=383>



Regional OFFLU Swine influenza group meeting, Brazil, October 2018

## Equine influenza update

Equine influenza (EI) is a respiratory disease of horses and has the potential to disrupt major equestrian events. EI can be controlled by vaccination but it has been demonstrated in the field that antigenic drift impacts vaccine efficacy. The Expert Surveillance Panel of EI comprising OFFLU and WHO influenza experts met at the OIE Headquarters in March 2018 and reviewed the EI virus activity, characteristics of the viruses isolated and vaccine performance. The panel studied the individual animal cases and outbreaks of equine influenza reported by China, Ireland, Israel, Japan, UK and USA in the

past year and recommended that vaccines for the international market should contain both clade 1 and clade 2 viruses of the Florida sublineage.

Recent virus strains, including suitable vaccine candidates for clades 1 and 2, are available from the OIE reference laboratories.

<https://oiebulletin.com/?official=8-4-1-oie-expert-surveillance-panel-on-equine-influenza-vaccine-composition>

## OFFLU wildlife/wild bird influenza group

The experts from various continents involved in wildlife/wild bird influenza surveillance and research met by teleconferences throughout the year to share data and provide situation updates of outbreaks in wild birds and poultry and updated guidance document on the role of wild birds in the circulation of avian influenza viruses.

In April 2018, during the Brighton OFFLU meeting, a side meeting was organised for the wildlife experts. Many new experts expressed interest in joining the OFFLU wildlife group and this will be considered as needs arise. Two concept notes on wild bird surveillance were discussed, one focusing on

global level and one focusing on Europe. The experts expressed the necessity to use these two concept notes and produce a larger document that outlines a clear and concise case for continued surveillance and surveillance-related research in wild birds.

Dr Billy Karesh, EcoHealth Alliance, USA who was the Chair of this technical activity handed over the leadership role to Dr Andrew Breed, Department of Agriculture and Water Resources, Australia to take over as the new chair from January 2019. The OFFLU Executive committee accepted this transition.

## OFFLU applied epidemiology technical working group

The OFFLU applied epidemiology technical experts were consulted on various occasions to provide advice and guidance on documents related to AI risk assessment and management. The documents reviewed and updated by the experts include the qualitative risk assessment of Anhui/2013 lineage H7N9 avian influenza spread in poultry and human exposure, qualitative entry and exposure assessment update addressing

Zaire Ebolavirus (EBOV) outbreaks and H5N8 risk assessment update.

<http://www.fao.org/3/i8705en/I8705EN.pdf>

<http://www.fao.org/3/CA0908EN/ca0908en.pdf>

<http://www.fao.org/3/ca1209en/CA1209EN.pdf>

## OFFLU socio-economics technical working group

Recognizing the need to promote and partner in multi-disciplinary collaborations for effective disease control based on an understanding of socio-economic factors and value chains, the OFFLU Steering and Executive Committee initiated the formation of the socio-economics Technical Activity. This technical activity will try to address the specific matters of

understanding the social and economic impact of influenza viruses in animals and their impact on humans. Dr Jonathan Ruston, University of Liverpool, UK was appointed as the Chair of this activity and efforts to finalise the terms of reference, membership and work plan are ongoing.

## Other contribution

In June 2018 several experts from the OFFLU network participated in the OIE *ad hoc* group on avian influenza to advise on proposed changes to the avian influenza chapter in the Terrestrial Animal Health Code. This is an ongoing work for an in-depth review of the AI chapter.

<http://www.oie.int/en/standard-setting/specialists-commissions-working-ad-hoc-groups/ad-hoc-groups-reports/>

## Changes in the OFFLU management structure

Dr Peter Daniels from Australia stood down as Chairman of the OFFLU Steering Committee after serving for 5 years in that capacity. Professor Ian Brown (Animal and Plant Health Agency, UK) took over as the new Steering Committee Chairman from October 2018. The other new appointments include Dr Mia Torchetti (National Veterinary Services Laboratories, USA) as the new member of the OFFLU Steering Committee.



Professor Ian Brown  
Steering Committee Chairman



Doctor Mia Torchetti  
Steering Committee member

## Tribute to Dr Peter Daniels

OFFLU network extends its deepest condolences for the loss of Dr Peter Daniels from Australia. Dr Daniels was a founding member of OFFLU and served as Chair of the Executive Committee and Chair of Steering Committee. Under his leadership, OFFLU has grown into a successful animal influenza network and gained visibility internationally. He also gave his individual expertise to OIE, FAO and WHO on influenza issues.



Doctor Peter Daniels

## Acknowledgements

OFFLU expresses its sincere gratitude to all OFFLU experts for their exceptional efforts and enthusiasm and the Chief Veterinary Officers of countries who support these experts and share data and biological material such as viral isolates and antisera for the global animal and public health benefits. OIE and FAO would also like to thank the donors to OFFLU who have and are supporting the OFFLU activities.

