



OFFLU Annual Report 2022

In 2022, OFFLU conducted the following activities pertaining to avian influenza (AI), swine influenza (SI) and equine influenza (EI).

Avian influenza technical activity

In 2022, the high pathogenicity avian influenza virus (HPAIV) epidemic continued to threaten animal and human health worldwide. During the year a record high number of detections were reported with millions of poultry affected as well as wild birds throughout the continents of Europe, Asia, Africa and the Americas. The majority of these events were due to clade 2.3.4.4b H5N1 HPAIVs that exhibited extensive genetic variability within regions. There has also been an increase in reports in H5N1 clade 2.3.4.4b infections in terrestrial carnivorous mammals and in marine mammals. Reports of several human infections with this virus are still very sporadic and have been detected in some of the affected continents. H7 subtype HPAIVs continued to cause outbreaks in poultry in some regions. Low pathogenic avian influenza viruses (LPAIV) of the H9N2 subtype continued to cause poultry production losses in many countries. A few human infections with LPAIV H3N8 and H10N8 were also reported in 2022.

In response to the global surge of avian influenza outbreaks, the OFFLU network experts participated in teleconferences and tripartite risk assessments and have shared important data with the scientific community and policy makers. OFFLU experts, Food and Agricultural Organisation (FAO), World Organisation for Animal Health (WOAH) and the World Health Organisation (WHO) exchanged regular communication to share public and animal health data and to improve communications between the organisations.

[OFFLU technical statement on H3N8](#)

[Tripartite preliminary rapid risk assessment on H3N8](#)

[Update of the Influenza A cleavage site document](#)

[OFFLU contribution to a rapid risk assessment of recent H5N1 clade 2.3.4.4b viruses](#)

[OFFLU statement on HPAI caused by viruses of the H5N1 subtype – March 2023](#)

WHO Vaccine Composition Meeting Technical Activity

Every six months OFFLU avian influenza and swine influenza technical activity expert groups coordinates inputs from WOAH and FAO Reference Centers, research programs and national veterinary laboratories to provide animal influenza virus genetic, antigenic and epidemiological data for consideration during the WHO Vaccine Composition Meeting (VCM). These data are critical for assessment and updating of pre-pandemic candidate vaccine viruses for human vaccines against zoonotic viruses of concern.

In preparation for February and September 2022 WHO influenza VCM consultations, sequence data was provided from OFFLU network collected from laboratories in Europe, Asia, Africa, Oceania and the Americas. Over 1500 H5, 61 H7 and 106 H9 avian influenza virus sequences were collected and 408 H1 (from 17 different clades) and 126 H3 (from 11 different clades) swine influenza virus sequences were collected from Reference Centres, national veterinary laboratories and research networks through the OFFLU network and we are grateful to ACDP (Australia), ANSES (France), AHRI (Egypt), APHA (UK), APQA (Rep. Korea), ARRIAH

(Russia), CFIAN (Canada), FLI (Germany), HVRI (China), ICAR (India), IZSve and IZSVL (Italy), Ghent University (Belgium), NIAH (Japan), NVL (Viet Nam), Institut Pasteur (Cambodia), SSI (Denmark), USDA-APHIS NVSL and USDA-ARS NADC (USA), RVC (UK), WUR (Netherlands) and CEIRR as well as GenBank and GISAID contributors for this data.

Antigenic data were also generated by the haemagglutination inhibition (HI) assay using WHO Collaborating Centres (CCs) and OFFLU post-infection ferret antisera and corresponding virus antigens were carried out by OFFLU network experts from laboratories at IZSve (Italy), ACDP (Australia), APHA (UK) and USDA-ARS, USA.

The OFFLU VCM team would like to specifically acknowledge the involved contributing laboratories within the OFFLU network for their significant contribution of animal influenza virus data to help inform decisions impacting public health during the year 2022. This activity has witnessed successful growth over years and contribute to pandemic preparedness.

OFFLU contribution to WHO Biannual Vaccine Composition Meetings in 2022: [February](#) and [September](#)

Collaborative OFFLU/WHO One Health activities

In order to better understand the risk factors that underlines the emergence of influenza viruses with pandemic potential OFFLU contributors undertook specific One Health risk assessment activities to enhance the collective knowledge on risk factors, potential prevention and preparedness measures and highlight what needs to be done to reduce the risk associated with the emerging and re-emerging influenza viruses of pandemic potential.

Activities under the OFFLU/WHO initiative, included:

A. Recommendations on real time risk assessment of pandemic and zoonotic risks from avian influenza viruses at country, regional and international level were

B. Developing an Operational framework for risk assessment of emerging zoonotic influenza This framework describes the necessary actions to be undertaken by organizations and affiliated influenza technical experts during such events. This framework will be published in 2023 on the WHO website.

C. Production of antigenic test reagents harmonised with the WHO global influenza surveillance and response system (GISRS) to facilitate timely risk assessment of the pandemic potential of currently circulating avian viruses. These reagents were shared within the OFFLU network and to WHO CCs. Data generated using these reagents were included in OFFLU VCM reports.

OFFLU proficiency testing

The OFFLU proficiency testing panel for the year 2022 was received by WOA/FAO Reference Centers and was designed to assess the capability of the laboratories to detect and characterize representative widely circulating lineage of H5, H7 and H9 subtype avian influenza viruses. The round was coordinated by the Australian Centre for Disease Preparedness (ACDP) and conducted under their ISO/IEC 17043:2010 accreditation.

OFFLU conducts these proficiency testing rounds in support of the laboratories to facilitate international harmonization of testing proficiency and the proficiency test panels are 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.

OFFLU Avian Influenza Matching (AIM) activities

An OFFLU initiative to provide information on the real time antigenic characteristics of contemporary avian influenza viruses is underway. A preliminary pilot project has taken place involving reference laboratories of APHA, UK and IZSve, Italy to generate a standardized panel of reagents.

A report presenting the results of the pilot project will be made available to stakeholders in April 2023 and networking and expanding the geographical reach of this project with select partners is ongoing.

[Concept note for the long term AIM project](#)

[AIM Pilot project information](#)

OFFLU applied epidemiological technical working group activity

In 2022 the OFFLU applied epidemiological group experts gave their inputs on a number of documents including the FAO environmental sampling guidelines for AI surveillance which will be published later in 2023. The group also provided expert inputs to the FAO guiding principles for the design of AI risk-based surveillance in Asia and wrote a perspectives article

which was published in the FAO EMPRES 360 animal health newsletter on information improving effective interventions.

OFFLU experts also collaborated with STAR-IDAZ for developing research road maps on animal influenza based on identified research gaps.

[FAO guiding principles for the design of AI risk-based surveillance in Asia](#)

[Animal Influenza Research Review](#)

[FAO EMPRES 360 animal health newsletter on information improving effective interventions](#)

Wildlife influenza technical activity

The OFFLU wildlife technical activity have been sharing data and offering support to countries and working close with their local public health counterparts to track and monitor risk in response to the H5 mammalian spill overs experienced throughout 2022.

In January 2022 experts gave an update of the H5N1 events in wild birds in the Americas, Europe and Asia. Also in January 2022, OFFLU experts also contributed to the Scientific task force on avian influenza and wild birds statement on: H5N1

High Pathogenicity Avian Influenza in poultry and wild birds: Winter of 2021/2022 with focus on mass mortality of wild birds in UK and Israel.

In December 2022, an online teleconference was called for OFFLU avian influenza and wild bird experts to share a situation update.

In March 2023, OFFLU experts discussed the increased AI events in mammals.

H5N1 Events in Wild Birds in the Americas, Europe and Asia

H5N1 HPAI in Poultry and Wild Birds: Winter of 2021/2022 with Focus on Mass Mortality of Wild Birds in UK and Israel

OFFLU call for avian influenza and wild bird situation update, December 2022

OFFLU call to discuss Avian Influenza events in mammals, March 2023

OFFLU swine influenza virus group activities

Swine influenzas continued to circulate globally with sporadic spill overs into humans reported in several countries. The swine influenza virus group contributes invaluable information to the WHO vaccine composition meeting for influenza pre-pandemic preparedness. A new candidate vaccine virus was proposed in February 2022 for A(H1) 1A1.1 lineage viruses. OFFLU experts contributed to a TIPRA exercise which was initiated due to the wide geographical detection in swine populations and reported of human cases by swine influenza A(H1) 1C lineage viruses since 2017.

The OFFLU swine influenza group met virtually in June 2022 and shared data about the global swine influenza situation in pig populations by providing regional and country-specific reports from Asia, Europe, Africa and Americas. Participants included scientists conducting influenza surveillance and/or performing influenza research or diagnoses in swine and at the human-swine interface.

OFFLU Swine Influenza Group Virtual Meeting, June 2022

Equine influenza update

The Expert Surveillance Panel of Equine Influenza comprising OFFLU and WHO influenza experts met virtually in July 2022 and reviewed the Equine Influenza virus activity, characteristics of the viruses isolated and vaccine performance.

The panel recommended that vaccines for the international market should contain both clade 1 and clade 2 viruses of the Florida sublineage. The recommendations remain unchanged from previous years.

Expert surveillance panel on equine influenza vaccine composition

OFFLU Steering and Executive Committee meetings

OFFLU Steering and Executive Committee meetings were held in January, June and October 2022 to review the outputs of various ongoing technical activities, provided recommendations for follow ups and approved new technical activities. Membership changes of the committees were discussed and effected as per the OFFLU modus operandi.

FAO recruited an OFFLU scientist to support OFFLU technical activities and communications activities.

Professor Ian Brown (APHA, UK), the Steering Committee Chairman gave an interview to WOAHP on the importance of the network.

OFFLU Steering & Executive Committee Meetings:
[January](#), [June](#) & [October](#) 2022

[OFFLU Steering and Executive Committee Members](#)

[Prof Ian Brown on the importance of the Expertise Network](#)

Acknowledgements

OFFLU expresses its sincere gratitude to all the contributing experts for their exceptional efforts and enthusiasm and the Members that support these activities and share data and biological material such as viral isolates and antisera for the global animal and public health benefits. WOAHP and FAO would also like to thank the donors to OFFLU that contribute to supporting the OFFLU activities.

Visit OFFLU website: www.offlu.org

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