OFFLU Annual Report 2021

In 2021, the avian influenza (AI) 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 North America. The majority of these events were due to goose/Guangdong lineage (Gs/GD) H5 clade HPAI viruses (H5N1, H5N2, H5N3, H5N4, H5N5, H5N6, H5N8) mostly of clade 2.3.4.4b with extensive genetic variability of subtypes creating a challenging landscape. H7N7 viruses were also reported. Notably, there has been an increase in H5N6 human cases reported during 2021. Whilst not officially reportable, poultry adapted H9N2 continues to cause production losses in many countries.

https://www.offlu.org/wp-content/uploads/2021/11/OFFLU-November2021-Final.pdf

https://www.offlu.org/wp-content/uploads/2021/12/OFFLU-call_Nov2021.pdf

https://www.offlu.org/wp-content/uploads/2021/12/OFFLU-statement_Newfoundland__H5N1.pdf

https://www.offlu.org/wp-content/uploads/2022/02/OFFLU-wild-bird_jan2022summary_final.pdf

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 network members. Due to national and international circumstances related to the COVID-19 pandemic situation, the sample submission and diagnostic activities have been impacted to a certain extent. 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 avian influenza and swine influenza technical activity expert groups coordinates inputs from OIE/FAO Reference Centres and national veterinary laboratories to provide animal influenza virus genetics and epidemiological 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 February and September 2021 WHO influenza VCM consultations, sequence data was provided from OFFLU network for over 298 H5, 1 H7 and 17 H9 avian viruses representing over 30 countries in Europe, Asia, Middle East, Africa, Oceania, and North America. Equally 495 H1 and 304 H3 swine influenza virus sequences were contributed through the OFFLU network.

Antigenic data were also generated by the haemagglutination inhibition (HI) assay using WHO-CC and OFFLU ferret-origin reagents and was carried out by OFFLU experts from Instituto Zooprofilattico Sperimentale delle Venezie in Italy (IZSVe), Australian Centre for Disease Preparedness (ACDP) 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 for their significant contribution of animal influenza virus data to help inform decisions impacting public health during the year 2021.

https://www.offlu.org/index.php/offlu-vcm-summary-reports/

https://www.offlu.org/wp-content/uploads/2021/03/OFFLU_Feb2021_FINAL5_Upload_website_Publications.pdf

https://www.offlu.org/wp-content/uploads/2021/10/OFFLU-Sept2021-AVIAN-Final.pdf

OFFLU Proficiency Testing

The OFFLU proficiency testing panel for the year 2021 was received by eleven OIE/FAO Reference Centres 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 Centre for Disease Preparedness (ACDP) and conducted under their ISO 17043 accreditation.

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.

Guidance on Influenza A cleavage sites

In December 2021, OFFLU experts updated the Haemagglutinin Cleavage Site document which provides information regarding amino acid sequences at the H5 and H7 Influenza A haemagglutinin cleavage site which assists in the differentiation of low and high pathogenicity avian influenza A viruses through molecular analyses, as described in the avian influenza chapter of OIE Terrestrial Manual. This update included sequences for H7N7 viruses circulating in Australia in 2020 and H5N8 from recently circulating European strains.

https://www.offlu.org/wp-content/uploads/2022/01/Influenza-A-Cleavage-Sites-Final-04-01-2022.pdf

Scientific Task Force on Avian Influenza and Wild Birds

OFFLU experts provided inputs in the statement, from the Convention on Migratory Species (CMS) Scientific Task Force on Avian Influenza and Wild Birds, in response to the extensive and large-scale outbreaks of highly pathogenic avian influenza (HPAI) in wild birds in the northern winter of 2021/22. The purpose is to inform stakeholders in governments, the poultry sector, disease control, wildlife management, site management and conservation sectors about HPAI viruses in wild birds and appropriate responses.

Specific notes with recommendations and a guide to existing guidance for those managing regionally and globally important sites for waterbirds and other wildlife are included.

https://www.cms.int/sites/default/files/uploads/avian_influenza_0.pdf

OFFLU Swine influenza virus group activities

The experts contributed swine influenza virus data for consideration during the WHO Vaccine Composition Meetings (VCM). These data are needed to update pre-pandemic candidate vaccine viruses for human vaccines against zoonotic viruses of concern and 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 2021, 495 H1 and 304 H3 swine influenza virus sequences were contributed through the OFFLU network.

https://www.offlu.org/wp-content/uploads/2021/10/OFFLU-VCM-SWINE-FINAL3.pdf

https://www.offlu.org/wp-content/uploads/2021/10/OFFLU-Sept2021-SWINE-Final.pdf

Equine influenza update

The Expert Surveillance Panel of Equine Influenza comprising OFFLU and WHO influenza experts met virtually in July 2021 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 year.

OIE Expert Surveillance Panel on Equine Influenza Vaccine Composition - OIE Bulletin

OFFLU Steering and Executive Committee meetings

OFFLU Steering and Executive Committee meetings were held in July and November 2021 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.

https://www.offlu.org/wp-content/uploads/2021/11/OFFLU-SC_EC_July-2021.pdf

https://www.offlu.org/wp-content/uploads/2022/01/OFFLU-SC_EC_Nov-2021.pdf

https://www.offlu.org/index.php/offlu-organisation/

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