



OFFLU summary report of WHO VCMs February & September 2015

Dear OFFLU Network Members,

The WHO Consultations on the Composition of Influenza Virus Vaccines for the Northern and Southern hemispheres 2015-2016 took place in Geneva, Switzerland on the 23-25 February 2015 and in Memphis, USA on the 21-23 September 2015, respectively. The OFFLU network was represented at these 2015 WHO Vaccine Composition Meetings (WHO-VCM) by the OFFLU scientist and secretariat, and its reference experts from the CSIRO Australian Animal Health Laboratory (AAHL). We would like to thank all of the OFFLU reference laboratories and influenza experts who had contributed timely virus data and analysis toward this important animal-human interface activity, including the AAHL, Australia; National Centre for Foreign Animal Disease (NCFAD), Canada; National Avian Influenza Reference Laboratory, Harbin Veterinary Research Institute, China; National Laboratory for Veterinary Quality Control on Poultry Production (NLQP), Egypt; National Institute of High Security Animal Diseases (NIHSAD), India; Istituto Zooprofilattico Sperimentale delle Venezie (IZSve), Italy; National Institute of Animal Health (NIAH), Japan; State Research Centre of Virology and Biotechnology VECTOR and Federal Centre for Animal Health (FGBI-ARRIAH), Russia; Animal and Plant Health Agency (APHA), United Kingdom; and the National Veterinary Services Laboratories (NVSL), USDA. We also again acknowledge the ongoing support from Dr Richard Webby (St Jude Children's Research Hospital; SJCRH) and Dr Ruben Donis (CDC Atlanta) from the WHO Collaborating Centres for Influenza (USA) for the production and sharing of H5N1 virus antigens and ferret antisera to the OFFLU Hemagglutination Inhibition (HI) test reference laboratories for use in antigenic analysis.

Virus data contributed by the OFFLU network over 2015 was predominated by the emergent clade 2.3.4.4 H5Nx HPAI viruses that had distributed over multiple countries in Asia, Europe and North America. However H5N1 HPAI viruses remained in widespread circulation in its established endemic regions. Data from zoonotic influenza viruses of animal origin was also presented by CDC-

Atlanta, SJCRH-Memphis, CNIC-Beijing, and The University of Hong Kong (HKU). The epidemiological and molecular data on zoonotic influenza viruses for the period 24 September 2014 to 18 February 2015 that were gathered by the OFFLU network were presented at the Geneva VCM meeting in February 2015. These included new data from avian origin clade 2.3.4.4 H5Nx HPAI viruses from Canada (H5N2), China (H5N6), Lao PDR (H5N6), Italy (H5N8), Japan (H5N8), Russia (H5N8) and the USA (H5N1, H5N2, H5N8). New data from H5N1 HPAI viruses of clade 2.2.1 in Egypt, and clade 2.3.2.1c in China, India, Nigeria and Russia were also presented. Furthermore, OFFLU contributed some data from wave three H7N9 viruses from poultry in China, and G1-like A(H9N2) from Egypt.

Epidemiological, molecular and antigenic data on zoonotic influenza viruses for the period 24 February 2015 to 25 September 2015 that were gathered by the OFFLU network were presented at the Memphis VCM meeting in September 2015. In this period 25 countries and territories have reported 462 detections or outbreaks of confirmed Eurasian HPAI H5N1 and 460 detections of HPAI H5Nx, with the majority of events reported in poultry and other domestic avian species. New OFFLU data from avian origin clade 2.3.4.4 H5Nx HPAI viruses since February 2015 were shared by Canada (H5N1, H5N2), Hungary (H5N8), the Republic of Korea (H5N8) and Vietnam (H5N6). Additionally, new H5N1 data from clade 2.2.1.2 viruses in Egypt, Israel and the Palestinian Authority, clade 2.3.2.1a viruses in Bhutan and India, clade 2.3.2.1c viruses in Burkina Faso, Ghana, Ivory Coast, Niger, Nigeria, Bulgaria, Romania, Russia, Turkey, India and Vietnam, and clade 2.3.4.2 viruses in Myanmar, were presented. Significantly, these included real time genetic data from the emergence and re-emergence of H5N1 lineages in several countries in Eastern Europe (clade 2.3.2.1c) and West Africa (clade 2.3.2.1c) and Myanmar (clade 2.3.4.2). The OFFLU VCM team would like to specifically acknowledge the abovementioned OFFLU network labs and countries for the significant increase in submissions of HPAI genetic data for the September 2015 VCM consultation, compared to the previous few rounds. Most importantly for the WHO-VCM objective of selecting and assessing pandemic preparedness vaccines against zoonotic animal influenza viruses, there was also a marked increase in submissions of virus samples to the OFFLU HI reference labs over the February to September 2015 reporting period. This had enabled the contribution of antigenic data generated using the WHO-VCM reference ferret antisera against clade 2.3.4.4 H5Nx viruses from Europe, the Republic of Korea, and Southeast Asia; as well as the H5N1 clades 2.3.2.1c, 2.3.4.2 and 2.2.1.2 viruses responsible for HPAI epizootic outbreaks in poultry in Southeast Asia and north and west Africa.

The OFFLU contribution of antigenic data towards the September 2015 VCM consultation was encouraging since, (i) the logistics of distribution of WHO-VCM reference ferret antisera and corresponding virus antigen stocks remain problematic and a heavy burden on the donor WHO

Collaborating Centres, and (ii) timely submissions of recently circulating virus samples from regional animal health labs to the OFFLU reference centres for HI testing continue to be challenging. To further facilitate this key VCM technical objective, the OFFLU VCM team was able to secure a US Association of Public Health Laboratories (APHL) grant funding for the project, “Improving the OFFLU contribution to the selection process for human vaccine candidate viruses for pandemic preparedness purposes”. The OFFLU VCM Team would like to acknowledge APHL for this project opportunity. This OFFLU project has enabled a selected OFFLU (animal health) reference laboratory, AAHL to collaborate with the relevant WHO Collaborating Centre labs to better investigate standardised approaches to ferret antisera production for antigenic (HI) testing of zoonotic animal influenza viruses of pandemic concern, including clade 2.3.4.4 H5N6 viruses from Lao PDR and Vietnam. This project has facilitated the production of such ferret reagents by an OFFLU animal health reference lab for the first time, and assisted in the reagent distribution to other OFFLU and WHO labs including APHA, IZSve, HKU, SJCRH and US-CDC for HI evaluation and antigenic testing against their respective circulating virus strains. The collated results and outcomes of the ferret reagents produced and distributed by AAHL were discussed at the September 2015 WHO-VCM and further detailed in the APHL Project Final Report, and these have greatly facilitated the development towards standardised approaches and identified improvements for future VCM ferret antisera production directly by the OFFLU network.

The pandemic preparedness outcomes from the antigenic and genetic characterisation of zoonotic influenza viruses arising from the 2015 WHO-VCMs have been posted on the WHO website:
http://www.who.int/influenza/vaccines/virus/201502_zoonotic_vaccinevirusupdate.pdf
http://www.who.int/influenza/vaccines/virus/201509_zoonotic_vaccinevirusupdate.pdf
The WHO had once again expressed their appreciation and reinforced to the OFFLU team of the importance of the OFFLU contribution of global zoonotic influenza data to the latest WHO-VCMs. This commitment by WHO towards a continuing and seamless collaboration with OFFLU was further highlighted by the appointment in 2015 of Dr Terry Besselaar from the WHO Global Influenza Programme (GIP) as its OFFLU specific focal point. We again thank the global OFFLU lab network for their support over 2015 and look forwards to an expansion of this commitment into the future.

The OFFLU VCM team
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