OFFLU Annual Meeting 16-17 November 2010
Outcomes and Actions

Exchange of scientific data and biological materials (including virus strains) within the network, to analyse such data, and to share such information with the wider scientific community

- Members of the OFFLU network are encouraged to promote OFFLU by using the OFFLU logo and website (www.offlu.net) on presentations and reports, and otherwise making reference to OFFLU whenever possible to improve visibility as OFFLU benefits from the combined actions of all its members.
- OFFLU recommends the sharing of information and biologic materials among the network with an emphasis on professionalism and trust. OFFLU does not recommend the use of MTAs unless absolutely necessary.

ACTION: OFFLU (OIE/FAO) to deliver a statement on the use/ non-use of MTAs

Technical advice, training and veterinary expertise to Member Countries to assist in the prevention, diagnosis, surveillance and control of animal influenza

- OIE Members are obliged to report novel influenza viruses in animals when they meet the criteria of a new and emerging disease.

ACTION: OFFLU applied epidemiology group to review influenza surveillance data requirements for existing infection and/or disease reporting mechanisms

Surveillance

- There are gaps in animal influenza surveillance worldwide.
    - Obstacles to influenza surveillance in horses include owner apathy and lack of a perceived benefit, and fear of movement restrictions being imposed
    - Incentives for sample submission/surveillance may be required where commercial, sport/performance or other sensitivities exist, including anonymous, geo-referenced sample submission
- Effective surveillance requires trust, an understanding of obligations and issues, defined roles and responsibilities and appropriate risk communication.
- Surveillance of influenza virus infections in animal populations should include:
    - a structured approach by country, across industry sectors, place and time to detect in a timely manner any emergence of new genotypes and phenotypes and investigation as to potential transmission routes,
    - a coordinated global strategy to detect gene flows across regions and continents,
    - whole genome analyses to detect reassortants, and
    - assessment of known and putative genetic markers such as for those indicative for species virulence, potential transmission to humans, or antiviral resistance
- Data and information on negative surveillance findings is also important for developing a comprehensive understanding of influenza virus distribution and temporal occurrence.

- The OFFLU Strategy document for surveillance and monitoring of influenzas in animals (http://www.offlu.net/OFFLU%20Site/OFFLUsurveillancepH1N1_180110.pdf) provides strategic guidance on influenza surveillance in animals and highlights the drivers for, and benefits of undertaking influenza surveillance in different animal species. OFFLU members are encouraged to submit recommendations for the document, or record their endorsement.

ACTION: OFFLU members are encouraged to submit recommendations for the OFFLU surveillance strategy document, and/or record their endorsement.

Assay standardization/harmonization of protocols

- Standardization and harmonization of testing protocols are essential.
- Antigenic and genetic variation must be monitored to ensure the use of sensitive and specific assays.
    - Systematic testing of primers/probes using plasmid target sequences is relevant to evaluating diagnostic PCR assays
    - Expand application to other assays
- International reference standards are under development.
    - H5 and H7 RNA copy based controls available upon request, contact the OFFLU Secretariat
    - Standardized H5 reagents will be available for distribution by March 2011
        - Once reagents distributed, it is recommended to timely report on strains demonstrating poor or no reactivity
        - Consider providing homologous antigens for antisera

ACTION: The OFFLU Technical Activity to Produce a Standard H5 Antisera (Ian Brown) to submit a dossier for the standardized H5 antisera to the OIE Biological Standards Commission with a view to it becoming an OIE standard

Proficiency testing breakout session

ACTION: The OFFLU Technical Activity for Proficiency Testing (Nichole Hines) to coordinate an international proficiency test for real-time PCR detection of influenza A viruses and selected HA subtypes involving OIE / FAO Reference Laboratories and Centres. Results to be presented at the next OFFLU technical meeting.

Capacity building

- Effective capacity building requires a strategy for follow-up support to initial training to help in applying the techniques and assay result interpretation in the specific environment of the home laboratory, equipment maintenance, and to develop troubleshooting skills.
- An OFFLU list of training that has been delivered internationally by the OFFLU laboratories, and the associated trainees, is recommended.
- Scientific writing workshops are recommended to encourage country level publication and data ownership. This may improve acceptance of abstracts and posters at research at regional/international venues as well as transparency in encouraging sharing of research data and analyses.
- The Capacity Building TA should determine the feasibility of listing available training material internationally, and develop a strategy to advise OFFLU members.

- The potential for synergy in sequencing and bioinformatics training with human health programmes should be encouraged.
- Capacity building in biorisk management is needed internationally.
    - Linkages with regional and global biosafety associations can assist
    - Biorisk management must be developed as integral part of good laboratory practices and management

Collaboration with WHO on issues relating to the animal-human interface, including early preparation of candidate vaccine viruses for human use

- OFFLU will continue to contribute to the WHO vaccine virus selection process by providing data from the animal health sector to inform selection of pre-pandemic candidate influenza vaccine strains for human use.
    - The process and details have been agreed by OFFLU and WHO and will be established in an exchange of letters between OIE, FAO and WHO
    - A report for the next vaccine composition meeting in Geneva, 14 February 2011, is intended and teleconferences envisioned to guide preparation of data from the OFFLU laboratories
- Data should flow freely between animal health and public health sectors bidirectionally.

ACTION: WHO, OIE and FAO to establish OFFLU collaboration in the vaccine virus selection process through an exchange of letters which formalize the activity, with the aim of providing information on animal influenza viruses of public health concern

Highlighting influenza research needs, promoting their development and ensuring coordination

Antigenic cartography

- Visualization of virus typing data and post vaccination serology generated by HI assay using antigenic cartography has shown promise in interpreting the antigenic relatedness and evolution among swine, equine, and avian influenza viruses, and the analysis can support selection of viruses for use in subsequent in vivo testing using standardized challenge test models.
    - Ongoing research is needed to further understand the effect of sera generated from different species, reagent protocols, and assay protocols in the differentiating power of the associated cartography analysis

Molecular markers breakout session

- An OFFLU technical activity will be established to extract published information on recognized and putative molecular markers of phenotypic characteristics of animal and public health concern and distribute a practical, annotated and prioritized list to OFFLU laboratories.

ACTION: Timm Harder in collaboration with Liz Mumford to define scope, membership and a plan of work for this OFFLU technical activity following the breakout group discussion

The global gene observatory concept breakout session

- It was agreed that the global gene observatory concept should be carried forward by OFFLU in collaboration with CDC and other public health partners.

ACTION: Ilaria Capua and Nancy Cox to take forward this concept under the umbrella of OFFLU and in close partnership with public health counterparts

Swine influenza breakout session

- Gaps in our baseline knowledge on influenza viruses circulating in swine exist. Moreover, there are geographic regions where very little is known regarding subtypes and genotypes of influenza viruses in swine. Stronger virological surveillance is needed.
- Serological surveillance for influenza in swine is of limited value where the endemic swine influenza viruses are poorly characterized and/or where vaccination is practiced.
- The accurate interpretation of field HI data from swine is currently very difficult in countries where multiple serotypes and lineages co-circulate.
- There is a need for further research to understand the immune responses of swine to influenza viruses for antigenic characterization as well as vaccine development.
- A network of collaborating labs doing surveillance and research in swine influenza viruses would be beneficial for leveraging resources and expertise to address the gaps.

ACTION: Amy Vincent and Kristien Van Reeth to develop an OFFLU technical activity for coordination of swine influenza virus surveillance and research globally.

Vaccination breakout session

- OFFLU recommends that improved vaccine control measures including government registration and licensing be based upon scientific data.
- Appropriate vaccine application, coverage, and post-vaccination monitoring are important.

- Avian influenza vaccination:
    - Avian influenza vaccines should be fit for purpose, containing high antigenic mass, be antigenically relevant and be applied in a real-world feasible manner to a high number of birds within the population and/or region
    - Unlike vaccines for humans or horses, most poultry influenza vaccines contain potent oil adjuvants, which broaden serological cross-reaction and cross-protection against similar antigenic strains
    - Continuous and targeted surveillance is important in H5N1 endemic countries to identify potentially diverse viruses and select appropriate vaccine seed strain selection
    - H5 avian influenza seed strains should be selected based on genetic, antigenic and *in vivo* challenge data from relevant field viruses within the country of potential registration or use; once confirmed, these strains should be listed by antigenic / genetic type (e.g. “lineage-like” virus) as per the WHO model, rather than specific isolates being nominated
    - Studies are recommended to develop a better understanding of the processes leading to evolution of avian influenza viruses in vaccinated populations
- Swine influenza vaccination:
    - It is recognized that swine influenza vaccines are used to protect swine industries from economic loss, but studies are recommended to determine the effect of vaccination on the reduction of viral transmission and emergence of variant viruses
    - Unlike vaccines for humans or horses, most swine influenza vaccines contain potent oil adjuvants, which broaden serological cross-reaction and cross-protection with related influenza strains

- Equine influenza vaccination:
    - Improved global surveillance for equine influenza is needed in order to identify appropriate seed strain(s) relevant to countries and/or regions

OFFLU Research Agenda breakout session

- The draft listing of research priorities for animal influenza have been developed and are available for comment from the OFFLU Secretariat. The final list will be available in January 2011.

ACTION: David Swayne to finalise the OFFLU research agenda before publishing on the OFFLU website.

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