Summary

The captioned meeting was held as a part of OIE/JTF Project for Strengthening HPAI Control in Asia (HPAI project, FY2008-2012), with a view to consider how to expand the work done under this project, now concluding, into a new project on One Health to start in FY 2013.

Starting with a summary of activities under the HPAI Project, discussion proceeded to cover a global update on swine influenza (SI), OFFLU activities, and SI surveillance in Thailand, Vietnam & Japan, as well as activities implemented by FAO in relation to SI. Interesting points noted in the presentation on surveillance include 1) isolation of reasortants between human seasonal influenza and a triple reassortant SI virus originated from North American strains in Vietnam and 2) highest virus isolation rate among pigs aged six to ten weeks in Thailand.

It was noted that information on SI is deficient probably because it is not an OIE notifiable disease. In addition, the Expert Group considered it important to request both animal health and public health sectors for certain flexibility in conducting their activities of common interest, especially in sharing information related to genetics of viruses.

Recommendations from the Expert Group include raising awareness among stakeholders, enhancing public private collaboration, collaborative interventions of animal health and public health sectors to avoid consumer misperception on SI, promoting antigenic analysis and characterization, and enhancing the capacity of veterinary services for surveillance and diagnosis of SI. Further, it was also recommended to conduct cost benefit analysis at different production levels in relation to vaccination against SI.

Introduction

The OIE hold the Expert Group Meeting on Swine Influenza in Asia-Pacific Region on 23 April 2013 in Tokyo, Japan. The meeting was attended by ten experts representing Ministry of Agriculture, Forestry and Fisheries (MAFF) Japan, WHO Collaborating Center for Reference and Research on Influenza, OIE Reference laboratory on Swine Influenza, FAO Regional Office for Asia and the Pacific and OIE Regional Representation for Asia and the Pacific.

Dr. Hirofumi Kugita, Regional Representative of OIE Asia and the Pacific and Dr. Noriyoshi Ojima, Deputy Director of Animal Health Division of the MAFF Japan launched the meeting with brief opening remarks. The summaries of presentations made at the meeting are as follows;
Overview of OIE/JTF Project for Strengthening HPAI Control in Asia (presented by Dr Tikiri P Wijayathilaka)

The project was implemented from 2008 to 2012, consisting of three components, namely Component I: Strengthening information networking in Asia; Component II: Strengthening capacity of legislation and veterinary services; and Component III: Surveillance of wild birds & domestic animals along migratory flyways. Under this project, 5 OIE Regional Meetings on Strengthening Animal Health Information Networking in Asia and 5 Regional Expert Group meetings were held to share the information regarding with HPAI situation in Asia-Pacific Region, and to monitor the project activities, respectively. Moreover, surveillance of domestic and wild birds was also conducted in Laos, Vietnam and Mongolia to assess the importance of live bird markets and migratory flyways in the spread of AI virus. These studies showed that live bird markets play the important role to control the spread of AI in the region, while migratory wild birds may not have a significant role. The genetic information on detected virus is presented in the HPAI virus database at Hokkaido University.

Update on Global Swine Influenza Situation: OIE Activities (Presented by Dr Takehiko Saito)

Dr Saito presented the OIE Activities on SI, on behalf of Dr Gounalan Pavade, OFFLU Secretariat. The presentation highlighted the relevant chapters of OIE Code and Manual, objectives of OFFLU and objectives of OFFLU Swine Influenza Virus (SIV) Group. OFFLU is the OIE-FAO Network of Expertise on Animal Influenza, working to exchange scientific data and biological materials, offer technical advice, training and veterinary expertise to Member Countries, collaborate with the WHO influenza network on issues relating to the animal-human interface, and highlight influenza research needs, promote their development and ensure co-ordination. OFFLU SIV Group represents the experts from both animal and human health sector who are engaged in research and surveillance. The objectives of SIV group are to provide expert opinion and technical advice, to gather, exchange, and disseminate global knowledge of SIV, to identify and define gaps in knowledge in surveillance and research, and to evaluate and communicate information regarding viruses posing potential risk to veterinary and public health. Dr Saito reported to the meeting that “The review of Influenza A Virus in Swine Worldwide” has been accepted for publication in “Zoonoses and Public Health” journal, and the meeting reports of SIV Group are available for further information.

Summary on OFFLU Swine Influenza Virus Group meetings and Activities (Presented by Dr T. Saito)

The Expert Group was informed of SI situation in Canada, USA, Brazil, South & Central Americas, China, Hong Kong, Sri Lanka, EU, Australia, sub-saharan Africa, Japan, Thailand and Vietnam as presented in the third SIV Group meeting in April 2013. In summary the presentation indicated that EU has established a network for SIV surveillance but the sustainability of such network is questionable. For other continents, most surveillance programmes are passive and information is inevitably insufficient. Therefore it is difficult to obtain necessary information to understand epidemiology of SIV in pig populations. The strategy would be varied from country to country for the understanding of SIV ecology in pigs due to the geographical divergence of SIVs' genetics, pathology and epidemiology. Dr Saito also pointed out that the existence of pdm09 virus in pig population may pose human health risk because it generates genetic reassortant viruses with epizootic strains of SIV and such reassortants may
have a potential to cause human infections since they could have transmissibility to human yet human may not immune to surface antigens of SIVs.

FAO Activities in Swine Health in the Region (Dr Carolyn Benigno)

The triggers to practice swine health management stem from the fact that half of the current pig population in developing countries is still kept under small-scale production systems, intensification of commercial pig production in recent decades, and availability of new niche markets such as organic pig farming. FAO carries out a number of activities in the Asia-Pacific region which, functionally, broadly fall into the following main areas: (i) strategy / policy guidance, (ii) coordination, (iii) information generation and knowledge sharing, (iv) capacity building, and (v) support to field programme implementation. For swine health, there are three notable projects, two of which have been completed and one still ongoing. These are the 1) Emergency assistance for surveillance of novel influenza A subtype H1N1 viruses in pig & poultry production sectors in high risk Southeast Asian countries; 2) Assistance on diagnosis & management of PRRS and other swine diseases to improve swine health status in selected countries; and 3) EPT+ as a part of EPT programme for Risk modeling, surveillance, concurrent market trade and commodity networks assessment and contribution to broader global influenza initiatives including OFFLU. All three projects had all the five main area activities mentioned above. FAO mentioned also the tools available for SIV surveillance such as the Global animal disease information system (EMPRES-i) and Global Livestock Production and Health Atlas (GLiPHA). In conclusion, the presentation highlighted the importance of harmonization of approaches, capacity requirements such as equipment, training, epidemiological & laboratory, and optimizing surveillance approaches.

SIV surveillance in Vietnam and Thailand (presented by Dr Nobuhiro Takemae)

SIV surveillance in Vietnam has been conducted since 2010 by the collaboration of National Institute of Animal Health (NIAH), Japan, and Department of Animal Health (DAH), Vietnam. Nasal swabs were collected from targeted clinically healthy pigs in commercial farms, family farms and slaughter houses in both northern and southern regions, twice per year. The samples were subjected to Real-time PCR, then inoculation to MDCK or swine lung epithelial cell culture for virus isolation and genetic analysis. H3N2 and H1N2 viruses were isolated in 2010 and they were reassortant between a human seasonal influenza virus and a Triple reassortant swine influenza virus originated from North American strains. The SIV surveillance was also conducted in 2012.

In Thailand during 2008 to 2009, nasal swab sampling was done from clinically healthy pigs including sows older than 1 year of age, 12 to 16 weeks old fattening pigs, 3 to 10 weeks old weaning pigs and introduced pigs younger than 1 year of age. Animals were selected from farrow-to-finish pig farms in central region. The virus isolation using MDCK cells and genetic analysis were carried out. Highest virus isolation rate was observed in pigs of 3 to 10 weeks of age. The SIV surveillance was also conducted from 2011 to 2013. The presentation highlighted that active virological surveillance is crucial to understand mechanisms of maintenance and prevalence of SIV in the region and to conduct risk assessment.
SIV Surveillance in Japan (Dr Masato Tashiro)

National Institute of Infectious Diseases (WHO Collaborating Center for Reference and Research on Influenza) conducted SIV surveillance at slaughter houses from selected 10 – 17 sites out of 76 prefectural Public Health Institutes per year. Approximately 100 samples were collected from pigs of age between 5 to 8 months for the measurement of HI antibody titers. For virus isolation, nasal or tracheal swabs were obtained and virus isolation was performed in MDCK. The Expert Group was informed of the outcomes of their activities from 2005 to 2013 (annual cycle from June to March). According to the results, three H3N2 viruses in 2006, one virus in 2007, two H1N1 pd09 viruses in 2009, nine H1N1pdm09 viruses in 2010, seven H1N1pdm09 and 1 H1N2viruses in 2011, and two H1N2 viruses and one H1N1pdm09 virus in 2012, were isolated.

Discussion:

Dr Takehiko Saito, NIAH, Japan - OIE Reference Laboratory for Swine Influenza, chaired the discussion session to list the region’s strengths, weaknesses and threats in relation to managing and controlling influenza virus in pigs and to assess associated health risk in humans.

The Expert Group identified the following points as strengths of the region toward better control of SI:

- Diagnostic capacity for SI already exists in some countries in the region, including technical support by the OIE Reference Laboratory;
- Technologies are available in some countries in the region to manage intensive swine production;
- Thanks to cultural diversity in the region, the pig production area may be limited, which makes control easier;
- There are ongoing projects in the region that may provide certain technical and financial resources;
- Most countries in the region possess experience of influenza control gained through AI outbreaks and hence are equipped with basic infrastructure for control, including needed technology;
- Thanks to continuous studies in the region, genetic information on circulating SI viruses is available;
- Good public-private sector partnership exists in the swine production industry in the region

The Expert Group also noted the following points as possible weaknesses in conducting control activities for SI:

- Coordination among relevant parties at the in-country field level as well as at the regional level is still weak;
- Adopting updated technologies to manage intensified swine production remains at a low level;
- Farmers’ cooperation for surveillance remains inadequate due to the fear of negative economic repercussions;
- Consumer misperception about the zoonotic possibility of SI, including possible modes of human infection;
Biosecurity measures in swine production practice in general still remain at a low level;
Lack of information in vaccine efficacy and economic evaluation of vaccination;
As SI is not a disease notifiable to the OIE, there is no legislative basis for its surveillance and control;
Scientific information about the SI virus is still insufficient, including as to species barriers, which is an important human health concern;
Because of the cultural diversity in the region, adopting science-based official control measures at the production sites where SI infection is suspected may be limited.

The Expert Group lastly noted that the following may be considered general threats posed by SI for the region:

- Intensification of production due to human population growth and land use limitation;
- Development of re-assortants between pandemic virus strains and local endemic virus strains;
- Trans-boundary nature of the Swine Influenza virus.

Based on the discussion above, the Expert Group recommended the following for the OIE RRAP to note in planning and implementing further activities in relation to SI. It was reiterated that due attention should be given to the fact that information on SI tends to be insufficient as it is not a disease notifiable to the OIE.

1. A survey on the coordination among relevant sectors of targeted countries may be useful.
2. Holding cross-sectoral meetings should be encouraged, inviting animal health, human health and environment sectors, if appropriate, in order to exchange information and to facilitate more flexibility in their working agendas for collaboration. This may lead to requests to donors on all sides to be more flexible in the use of their respective funds.
3. Coordination among countries to facilitate sharing information related to swine health and production, SI diagnostic technology, genetics of viruses and possible establishment of a virus data base (virus bank?)
4. Awareness raising activities involving the human health sector should be considered to avoid misperception among consumers, with enhanced public-private collaboration.
5. The real economic impact of SI, both in “small holdings“ and in commercial farms, should be analysed.
6. Classification of pig producers based on biosecurity levels rather than size may be attempted to promote swine health management practices and appropriate handling practices, especially among “small holdings,” in view of reducing the possibility of contracting and spreading diseases, including SI.
7. Surveillance criteria, such as targeted population, place and time, should be established and surveillance should be implemented with enhanced public-private collaboration in order to associate SI viruses circulating in the field with particular production systems. Antigenic analysis and characterization of circulating viruses should be pursued.
8. In order to enhance the capacity of surveillance and diagnosis of SI, the OIE Reference Laboratory in the region should consider providing training both regionally and in-country based on demand assessment.
9. A system for specimen transfer to the OIE Reference Laboratory should be established so that specimens from countries with insufficient infrastructure can be properly analyzed and the results can be shared.

10. Efforts should be made to seek out possible joint activities with other partner notably FAO.

The Donor clarified its intention that the zoonotic possibility of SI viruses should be considered as a primary criterion for activities, due to the viruses’ public health and food security implications.

**Acknowledgement:**

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**Enclosed documents:**

- List of participants
- Programme