Challenges for providing technical training for the control of avian influenza

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OIE Reference Laboratory for HPAI and LPAI

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OIE reference laboratory for avian influenza (10 laboratories)

- Japan: Hokkaido Univ. <Since 2005>
Highly Pathogenic Avian Influenza Virus (HPAI)

H5Nx and H7Nx

High Mortality

Low Pathogenic Avian Influenza Virus (LPAI)

H9N2, H6N1
H5Nx, H7Nx,,

Mild or Asymptomatic Infection

VS.
H5N8 and H5N6 viruses to the world

Nov.28, 2016 現在

-Information from OIE/FAO emergency telephone conference and surveillance activities by Hokkaido Univ.
-Map from Google (https://www.google.co.jp/maps)
Nation-wide spreads of H5N6 HPAIVs in Japan in 2016-17 winter season
(as of 2-Feb, 2017)

Okamatsu et al., Emerg Infect Dis, 2017 in press
http://www.maff.go.jp/j/syouan/douei/tori/
http://www.env.go.jp/nature/dobutsu/bird_flu/
HPAI viruses should be contained in domestic poultry to fulfill a concept of One Health

Avian-type H5Nx viruses
Development of diagnosis kit

Epidemiology

Emergency diagnosis

Virus sharing

Development of diagnosis kit
### Time-line for diagnosis of A/black swan/Akita/1/2016 (H5N6)

<table>
<thead>
<tr>
<th>Date</th>
<th>Activities</th>
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<tr>
<td>11/18 (Fri)</td>
<td>Virus isolation</td>
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<tr>
<td>11/19 (Sat)</td>
<td>Egg inoculation [→] HA [→] HI [→] NI</td>
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<td>11/20 (Sun)</td>
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<td>11/21 (Mon)</td>
<td>Report to the government [→] OIE/FAO Teleconference</td>
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<td>11/22 (Tue)</td>
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#### Virus isolation
- Egg inoculation
- HA
- HI
- NI

#### Serological analysis
- RNA extraction
- Sanger Sequence
- NGS
- Submission to public database
- Infection to chickens

#### Genetic analysis

#### Animal experiment

Training course for influenza at Hokkaido Univ. in 2004
OIE Twinning project for avian influenza between SCVL, Mongolia and Hokkaido Univ., Japan
<September 2016- August 2018 (2 years)>
Challenges for providing technical training for the control of avian influenza

<Technical points>
- Conducting “Proficiency test” for neighboring countries and support weak points of each country
- Encouraging activities for the research and publication
- Facility and skills for experimental infection
- Fostering next candidates as OIE reference laboratory

<Administrative points>
- Budget to invite trainee to Japan
- Human resource to support training activities including paperwork
RECOMMENDATION FOR THE CONTROL OF AVIAN INFLUENZA

It is considered that;

- Highly pathogenic avian influenza H5N1 virus strains have persisted in domestic poultry for 14 years and antigenic variants have been selected mainly due to the misuse of vaccine.
- HPAI has been put under control in several countries.
- Stamping out policy has been the most effective measures for the control HPAI.
- Vaccine is used in 4 countries where HPAI has not been controlled.
- Vaccine is used instead of stamping out in 2 countries and in the other 2 countries, basically in addition to stamping out.
- Sentinel bids are put in the vaccinated poultry population in Viet Nam and not in the other 3 countries where vaccine is used.
- Compensation for livestock owners is done in most countries in case of stamping out.

It is recommended that;

- Since stamping out is the best and ultimate measure for the control of HPAI, vaccine should be used in addition to, not instead of stamping out.
- The OIE should continue and develop standards on animal influenza surveillance, prevention and control.
- Surveillance of swine flu is crucial in the countries where avian flu has not been controlled.