HPAI Control in China

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Ministry of Agriculture (MOA)  Ministry of Health (MOH)
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1 Recent HPAI occurrence in China

In this year, 6 outbreaks in poultry and 1 in migratory birds were confirmed in 6 provinces/autonomous regions in China’s mainland, including Xingjiang, Tibet, Qinghai, Inner Mongolia, Anhui and Hunan. Soon after these outbreaks, active control measures (including quarantine, stamping out, vaccination and movement control etc) were taken promptly. About 461,300 poultry were slaughtered. Up to October 28, all cases had been efficiently contained and eradicated at source. So far, there has been no report of human infection and people’s lives in HPAI infected zones remain stable.

2 Strategy for HPAI Emergency Response

Immediately after the first HPAI outbreak in China in early 2004, the National Headquarter for HPAI Control (NHHC) was established. The Headquarter, led by Vice-Premier Hui Liangyu, consists of Ministries of agriculture, health, finance and other relevant agencies. Headquarters were also established at local levels in each province which were all headed by principal members of the governments.

The Chinese Government implemented combined measures of quarantining, slaughtering, vaccinating and disposing, following the “early, rapid, and strict” principle stipulated in National Emergency Plan for Severe Animal Epidemics and National Contingency Plan for HPAI. Emergency plan for HPAI was initiated in case of outbreaks, and the following emergency measures were carried out.

2.1 Regionalization. Premises with infected poultry as well as relevant slaughtering houses and wet markets were considered as infected point; areas within the 3km radium were considered as infected zones; areas within 5 km around the infected zones were considered as buffer zones.

2.2 Stamping out. All poultry within infected zones were stamped out.

2.3 Emergent vaccination. All susceptible poultry in the buffer zones were vaccinated compulsorily with the vaccines approved by MOA.
2.4 **Bio-security disposal.** All poultry carcasses and poultry products in infected points, and excretion material, contaminated feed, litter stuff and sewerage from the infected zones were disposed in a bio-security method.

2.5 **Cleaning and disinfection.** All contaminated items within the infected zones, transportation vehicles, utensils, poultry counters and ground were cleaned and disinfected.

2.6 **Movement control.** Warning signs were set up around the infected zone, disinfection stations were set up in the transportation entrance of infected zones to disinfect vehicles and items entering and exiting the zones; movement of all susceptible live birds and their products were controlled.

2.7 **Closing the market.** All the poultry and their products markets in the infected zones, and the live birds markets with the 10km around the infected zones were closed.

2.8 **Tracing and investigation.** If poultry and their products were sold out or moved out during the incubation and clinical manifestation period, tracing was conducted on the suspected contaminated items to prevent disease spreading by these items.

2.9 **Compensation.** Compensation policy and mechanism was established for all poultry destroyed because of HPAI. The State Council issued *Notification on Several Measures to Support the Poultry Industry* to reduce the adverse effect on the poultry production. Local governments also enacted policies and took measures to reconstruct the farms in a timely fashion. They helped to supply loan, technology, or develop other business for farmers, in order to reduce economic loss of HPAI and increase the farmers’ income.

2.10 **Public health control.** Surveillance of occupational staff of poultry rearing, trade and transportation and process, especially staff in the infected zones and epidemiological investigation was conducted. Stringent protective measures were implemented for staff participating in the culling of infected birds.

2.11 **Quarantine lift.** The conditions for quarantine lift were stipulated as follows: 21 days for infected point and infected zone after strict treatment according to “*National Contingency Plan for HPAI*” and *The Technical Standards for Disposal of HPAI Outbreaks*; over 14 days for the buffer zone where is no new case occurrence after inspection and confirmation by veterinary authorities, following emergent vaccination of all the susceptible birds; after the lift, live birds markets 10km around the infection zone would be reopened. The infected points could be re-stocked 6 months after strict disposal.
2.12 International cooperation and communication. After the outbreaks of HPAI, MOA and MOH notified FAO and WHO immediately. China’s Chief Veterinary Officer also reported to the General Director of OIE. The two Ministries also communicated with FAO and WHO representatives in China on the disease situation and control measures and arranged a tour to the infected zones by FAO and WHO experts, who appreciated highly the measures taken by the Chinese Government. Chinese authorities also provided relevant information to relevant international organizations and over 80 countries/regions. Apart from participation in international conferences on the prevention, control and eradication of HPAI, China also organized a series of HPAI related events, including the China-ASEAN Special Meeting on HPAI and Workshop on the Diagnosis of HPAI for ASEAN in 2004, and the International Forum on Avian Influenza and Pandemic Preparedness and Response in Beijing last week.

On the other hand, the state strengthened global cooperation and communication between nations and regions, especially between the National Avian Influenza Reference Laboratory (NAIRL) with the other Reference Laboratories of OIE and WHO. NAIRL, a member of the WHO animal influenza surveillance network, has good relationship with other reference laboratories such as Central Veterinary Laboratory, Weibridge. The diagnostic methods in NAIRL include AGID, HA-HI, ELISA, RT-PCR, immunofluorescence, viral genome sequencing and analysis. During the period of HPAI epidemic in 2004, NAIRL tested 600 clinical samples and cotton swabs. All the 50 HPAI outbreaks were confirmed in NAIRL. It has sent 5 AI virus strains to WHO: A/chicken/GuangxiLongan/12/2004, A/duck/Guangxi Longan/13/2004, A/chicken/HubeiWuxue/14/2004, A/duck/Hunan Wugang/2004, A/chicken/Anhui Chaohu/85/2004.

3. Strategies of HPAI prevention and control in China

According to the Law of the People’s Republic of China on Animal Epidemic Prevention, the Chinese Government sticks to a Prevention First Policy in HPAI Control. The main policies and measures adopted are as follows.

3.1 Intensifying preventive vaccination. Vaccinations are compulsorily carried out in all susceptible poultry in the threatened zones and in the high risk areas such as those in breeding farms, large layer farms and the bird farms in water net areas. The bird flocks in other regions could be vaccinated voluntarily. Besides, vaccination is intensified especially in waterfowls in the water net areas of south China.
The Chinese government carries out a policy of approved vaccine production and unified supply according to relevant regulations. Three AIV vaccines are adopted in China including the inactivated AIV H5 vaccine (H5 subtype, N28 strain), inactivated recombinant AIV vaccine (H5N1 subtype, Re-1 strain) and the live recombinant avian pox virus vectored vaccine (H5 subtype).

3.2 Enhancing disease surveillance and early warning. Consistent with FAO *Guiding Principles for HPAI Surveillance and Diagnostic Network in Asia* and relevant provisions of *OIE Terrestrial Animal Health Code*, the central government developed and established *National HPAI Surveillance Plan (trial)*. The surveillance implemented by MOA was practiced on aetiology and serology. It stipulated that in order to improve the capability of early warning, two rounds of sampling in March and October every year must be implemented to take samples from the susceptible birds in the breeding farms, commercial bird farms, live bird markets, migratory birds habitats, border areas, water net areas and other high risk areas. Surveillance was concentrated on chickens, waterfowls (ducks, geese, etc), migratory birds and swine flocks.

From January to August 2005, 1,652,000 samples were tested, including 1,539,000 serum samples and 113,000 swab samples. Meanwhile, MOA organized two surveillance rounds. The results were as follow: 10 etiologic samples RT-PCR tested positive were from waterfowl (9 samples from waterfowl farms and 1 sample from market). MOA did further investigation and tested again, the results were negative. MOA also organized emergent vaccination in areas where positive samples were collected in order to enhance the prevention measures.

3.3 Improving emergency response system. *National Emergency Plan for Severe Animal Epidemics* and *National Contingency Plan for HPAI* stipulated the composition of all levels emergency preparedness system and response measures. MOA constituted *the Technical Standards for Disposal of HPAI Outbreaks* and *the Technical Standards for Disposal of Infected Animal and Carcasses of Animals that Died of Illness or of Uncertain Causes*.

3.4 Enhancing the quarantine and inspection in bird markets. All local animal health inspection authorities carry out a strict quarantine and inspection in the origin of production, slaughter houses and live bird markets. Local animal health inspection authorities send staff
to slaughter houses and poultry markets in charge of quarantine and inspection according to relevant laws and regulations.

3.5 **Intensifying the awareness of the public, improving poultry rearing environment.** Planned scientific knowledge dissemination and active consultation of HAPI prevention and control techniques are in place to improve preventive awareness of the public. *Regulations on the Auditing of the Conditions of Animal Disease Prevention* stipulated that the location of poultry premise should comply with the requirements of animal disease prevention. MOA attached great importance to the extension of standardized technology in animal rearing and small farms and premises are encouraged to practice intensive rearing to enhance the management and disinfection measures, prevent poultry from contact the wild birds and avoid the mixture of chickens, ducks, geese and swine.

In order to strengthen health education and increase the awareness of the public awareness on prevention and control HPAI, MOA issued *Handbook of HPAI Prevention and Control* and *Guideline of HPAI Prevention and Control*, which promote the scenic rearing ways and healthy living behaviors.

3.6 **Heightening the scientific and technological level.** On the basis of the principle “pooling advantages, sharing resources, highlighting key issues, uniting in resolving key problems”, multi-disciplinary experts were tasked to develop the *General Plan for Resolving the Key Problems in Prevention and Control of HPAI*, and 100 million RMB yuan (US 12 million) were allocated as special fund to carry out the scientific programs such as development of new, safe and highly effective vaccines.

3.7 **Supervising entry and exit quarantine strictly.** Risk analysis system is implemented in imported items. Quarantine system in borders must be stringent to prevent the introduction of exotic diseases.

3.8 **Intensifying the international communication and cooperation.** International communication and cooperation with FAO/OIE/WHO, and active participation in regional cooperation/assistance programs must be intensified, technological cooperation with the adjacent countries and regions must be enhanced.