Update on the Avian Influenza situation (As of 12/11/2005) – Issue no. 36

Avian influenza spread into Europe
Situations update (July - October 2005)

Summary findings

During the past weeks, the world has been on heightened alert as evidenced through the numerous reports and investigations coming out from Europe, the Middle East, all the way to South America. Surveillance and investigation activities are being strengthened worldwide in an attempt to detect and curb the spread of avian influenza (AI) that has already been confirmed in several European countries, both in wild and domestic birds.

Following the detection in July 2005 of outbreaks in Russia, Kazakhstan and Mongolia, the disease was reported in Romania, Turkey and Croatia in October 2005, confirming the westward spread of the virus along the pathways of migratory birds flying from Southeast Asia.

The likely South Asian origin of the outbreaks in Europe has been confirmed by AI virus sequencing analysis and virus isolation. These recent findings seem to demonstrate the role of wild birds in spreading the disease over wide distances. However, more research is urgently needed in this area to identify potential reservoir hosts and allow for the design of appropriate cost-effective and sound surveillance as well as control strategies in high risk countries.

The likely progressive spread of highly pathogenic avian influenza (HPAI) into new regions will require proactive intervention by the countries at risk, especially those situated along wild bird migration routes. Increased surveillance, detection capabilities and emergency preparedness will be required. Public awareness, along with education and training of veterinary and veterinary para-professionals, farmers, marketers, and poultry transport contractors and egg collectors, will be required to ensure that the disease is either prevented or detected and controlled, in order to prevent its establishment and maintenance in newly colonized ecosystems.
Update on AI epidemiology (July – October 2005)

In July and August 2005, AI outbreaks spread progressively in a north-westerly and then westerly direction, affecting Kazakhstan, Mongolia and Russia. The disease that was initially detected in domestic poultry flocks, mainly small scale farming units, was also reported in wild birds in these three countries (see map 1). Superimposition of poultry deaths over fatalities reported from wildlife was not seen; but this apparent discrepancy may be a reflection of information gaps (e.g. other unreported/undetected deaths or movement of people in and around the area).

National Veterinary services of the three countries have responded swiftly to these outbreaks and only a few cases were reported by end September. In Kazakhstan, the disease was brought under control in August.

After a significant decrease in the number of outbreaks during the second half of September, Russia reported, for the first time, outbreaks in Tambov province, West of the Ural Mountains (see map 3), while the disease was also detected in previously affected provinces.

The most serious causes for concern were the detection of avian influenza outbreaks in Turkey and Romania in early October, followed by Croatia (wild birds only) and its re-emergence in Southeast Asia.
Out of the 93 suspected disease events recorded in the EMPRES information system, 41 (44.1%) have been confirmed by OIE/FAO Reference Laboratory or National Laboratories. The Russian Federation has been the most affected country by far, followed, to a lesser extent by Romania. Out of the 41 confirmed cases from August to October in China, Croatia, Kazakhstan, Mongolia, Romania, Russia, Turkey, Thailand and Viet Nam, 11 were related to wild bird deaths (26.2%).
In Europe, increased surveillance activities have led to a large number of alerts and active investigation of suspected cases. Overall, 14 of the 93 suspected cases (15%) were either negative or had another origin (intoxication, low pathogenic avian influenza, Newcastle disease or negative). Disease alerts in Finland, Greece, Kosovo, Macedonia and Portugal turned out to be negative for HPAI.

The distribution of outbreaks in Europe has been associated with the presence of wetlands or lakes. In Turkey, the infected farm was located near an important lake where migratory birds rest. Domestic poultry might have come in contact with infected wild birds—although no dead wild birds were encountered in the area—contaminated water or an unknown source of infection. In Romania, cases were also found in the vicinity of the Danube Delta, and in a nature park in Croatia.

Map 6: wetlands distribution around outbreak sites (Croatia, Romania, Turkey)

Map 7: Wetlands distribution around outbreak site in Romania
Some countries in Europe decided to prevent contacts between poultry and wild birds by banning free-rang poultry husbandry. Such was the case in France, where these measures were implemented in 21 provinces. In positive cases, control measures included: stamping-out, disinfection, quarantine, movement control, zoning and screening. Up to now, vaccination has not been allowed within European countries. In Croatia, authorities have culled susceptible poultry within a 3 km radius around a positive case in a swan in Nasice: about 10,000 heads from 400 farmers were culled and a 20 km radius surveillance area was put into place.

To date, Croatia, Kazakhstan, Romania, Russia and Turkey have all reported H5N1 outbreaks. As the disease outbreak moves west, countries on the waterfowl flyway are becoming increasingly concerned about the risk of introduction of the disease and have strengthened surveillance and preparedness activities.

In Southeast and East Asia, outbreaks have continued to be reported in Cambodia, China, Indonesia, Thailand and Viet Nam.

**Hypothesis on avian influenza spread**

Genetic analyses of isolates from Mongolia (July 2005) show a close genetic relationship to wild bird isolates from the Qinghai Lake outbreak, China (April/May 2005). Genetic sequences from virus isolates obtained from 2005 wild bird outbreaks in Kazakhstan, Romania, Russia and Turkey have also established a relationship with the Qinghai Lake virus strain. However, temporal analysis of the outbreaks in Mongolia, Kazakhstan and Russia has not determined a single infection pathway (i.e. wild to domestic or domestic to wild) but supports the concept that both could have occurred. In addition, the months of July and August would not be expected to be the time for wild birds to be migrating from China to northern Mongolia, Kazakhstan or Russia, and no evidence of outbreaks was observed in central and southern lakes and wetlands of Mongolia closer to the Chinese border.

As for the involvement of wild birds in the introduction of the disease in newly affected areas, the following hypotheses can be formulated:

1) The introduction of the H5N1 strain arrived earlier in the year, prior to observed outbreaks in wild birds,

2) The infection returned with early southward migrants of summer Artic breeding species that were observed at the northern Mongolia outbreak sites, or

3) Spread of outbreaks was due to a combination of wild birds in some outbreak cases and the movement of domestic poultry, other animals, or equipment, in other cases.

It is also important to note that AI outbreaks had been reported in China in 2004 and July 2005 in the western part of the country, bordering Kazakhstan. Additional epidemiological information on these foci would be required to establish or rule out a possible connection between these outbreaks and the detection of the disease in Kazakhstan and Russia. Again, a combination of virus introduction through wild bird migrations on the one hand and movement of domestic animals and equipment on the other hand could be at the origin of the spread of the disease in these new regions.
What next?

After the confirmation of outbreaks of AI in Romania and Turkey, the risk of AI spreading to the Middle East and African countries has markedly increased (FAO Press release, 19 October 2005: Africa may face serious bird flu risk).

Indeed, one of the major concerns is the potential spread of AI through migratory birds to northern and eastern parts of Africa. Seasonal seeding of influenza viruses into backyard poultry systems by waterfowl migrating in the east and central Asian flyways (recognised migration routes from northern China/Siberia to Southeast Asia and South and West Asia) allows for regular addition of new viruses to the diverse domestic poultry virus pool.

If the virus were to become endemic in eastern Africa, it could increase the risk of evolving through mutation (adaptation) or reassortment into a strain that could be transmitted to and between humans. The close proximity of people and animals, coupled with insufficient surveillance and disease control capacities in a rich wetland ecosystem of eastern African countries, could create an ideal breeding ground for the virus.

This progressive spread of HPAI into new regions will require proactive intervention by the countries at risk, especially those situated along wild bird migration routes.

Map 9: East Africa – West Asia flyway and current outbreaks

The risk of AI to European countries from wild birds is relatively low at present. However, there is a significant risk that migratory birds could carry the virus to western and northern Europe next spring if wild bird populations are infected during their stay in southern regions. Veterinary services in Europe are generally robust with strong surveillance and disease control capabilities in place, to face this risk.
The epicentre of the disease currently remains in Southeast Asia where the virus continues to circulate in several countries and where a human pandemic could start, if the control of the disease in birds is not successful.

**EMURES actions and follow-up**

The Middle East, East Africa, North and West African regions may be the next stop along migratory bird flyways. Around lakes and wetlands, poultry density is particularly high and attention should be given to enhance and strengthen disease surveillance and emergency preparedness in these regions.

FAO is currently implementing five regional projects that will assist them in strengthening their surveillance of wild and domestic birds, improving laboratory capacities and information networking.

The primary objective of these projects is to strengthen the capacity for generating and sharing HPAI disease intelligence, and using this information to mount emergency preparedness planning against the eventuality of HPAI being introduced into the region, specifically in relation to migration of, and trade in, wild birds. To accomplish this objective, secondary objectives will entail: generating an understanding of migratory bird movement into and within the region and the potential for their contact with domestic poultry; building public awareness of the issues relating to the risks; strengthening HPAI field surveillance and laboratory support for diagnosis; establishing information and technology network linkages with other regions in the global system for HPAI surveillance.

**Sources of information**

EMURES group (http://www.fao.org/ag/aga/agah/empres)
Wetlands International (http://www.wetlands.org/default.htm)
Annex 1

Information for shipping international diagnostic specimens

To the OIE/FAO and National Reference Laboratory for Newcastle disease and Avian Influenza
Virology Department. Istituto Zooprofilattico Sperimentale (IZS) delle Venezie

Types of specimen: Specimens submitted may be virus isolates (not via Marco Polo Airport, Venice) made in the
submitting country or clinical specimen, such as tissues or swabs, collected from diseased birds.

Packaging requirements: All materials should be in leak-proof containers. Packaging should be composed of (1)
a primary receptacle, (2) a secondary packaging and (3) a rigid outer packaging. Packaging of “diagnostic
samples” (coded UN3373 with IATA PI650 standard) and “virus isolates” (coded UN2814 for HPAIV and UN2900
for NDV with IATA PI602 standard). Contact couriers to ascertain providing boxes complying with these
requirements.

Documents to be accompanied for clearing: Import permissions of the Italian Ministry of Health (formerly
provided by the IZS) and 8 signed proforma invoices (8 originals with signature. no photocopy accepted. The
format will be formerly provided by the IZS) should be attached firmly to the box.

Shipping modality: Air freight or couriers to Milan Malpensa Airport, Rome Fiumicino Airport or Venice Marco
Polo Airport. Arrange for shipments to arrive in Italian airports from Monday to Thursday only.

Shipping Address:
Istituto Zooprofilattico Sperimentale delle Venezie
Virology Department
Viale dell'Universita' 10
35020 Legnaro
Padova, Italy

Notification of shipment: Before shipping, please notify the following information to the IZS contact person.
• Embarkation date
• Airline name and the Flight number
• Name of the destination airport
• Date of arrival in Italy.
• Airway bill number

Contact people at the IZS:
William Dundon E-mail: wdundon@izsvenezie.it Phone: 0039 041 8084371, Fax: 0039 041 8084360
Giovanni Cattoli E-mail: gcattoli@izsvenezie.it
Alessandro Cristalli E-mail: acristalli@izsvenezie.it
Maria Serena Beato E-mail: msbeato@izsvenezie.it

Important: Contact the IZS in order to discuss testing and testing materials before shipping. Notify the contact
person with whom the IZS will keep in touch.
Information for shipping international diagnostic specimens

To the **Australian Animal Health Laboratory (AAHL)**

**Type of specimen:** Specimens submitted to AAHL for disease diagnosis may be either virus isolates made in the submitting country or clinical specimens, such as tissues or swabs, collected from diseased birds.

**Import permit and packing:** Copies of Australian import permits are available from AAHL by contacting aahl-accessions@csiro.au. All specimens must be packed in leak-proof containers in accordance with the appropriate IATA regulation and appropriately labelled. Suitable transport containers, packing instructions are also available from AAHL by contacting aahl-accessions@csiro.au. Copies of the import permit and other consignment details should be attached to the outside of the package to expedite clearance through Australian customs.

**Notification of shipment:** If submitting specimens please notify the accessions clerk on accessions@csiro.au, the Duty Veterinarian on dutyvet@csiro.au or Dr. Peter Daniels on +61 3 5227 5000 of the consignment details so that the specimens can be collected upon arrival in Australia. Alternatively send the information by facsimile to +61 3 5227 5555. Consignment details include the consignment note/air weigh bill number, courier/airline and expected arrival date.

**Shipping address:**

The Director  
Australian Animal Health Laboratory  
5 Portarlington Road  
Geelong, 3220  
Australia  
Telephone 61 3 5227 5000  
Facsimile 61 3 5227 5555  
http://www.csiro.au/aahl

**Contact for Avian Influenza:** You may also wish to discuss the testing required with Peter Daniels (peter.daniels@csiro.au) or Paul Selleck (paul.selleck@csiro.au) on +61 3 5227 5000 prior to submitting the specimens.

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To the **Avian Virology Laboratory, Veterinary Laboratories Agency, Weybridge, UK**

from outside the EU

**Packaging requirements.** All materials should be in leak-proof containers. At least two layers of packaging should be used and the inner layer treated lightly with disinfectant.

The outer packaging must be marked as follows:

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ANIMAL PATHOGEN - PACKAGE ONLY TO BE OPENED AT THE AVIAN VIROLOGY SECTION, VLA, WEYBRIDGE. IMPORTATION AUTHORISED BY LICENCE NUMBER....*....ISSUED UNDER THE IMPORTATION OF ANIMAL PATHOGENS ORDER.
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*Insert one of the following LICENCE NUMBERS:-  
For Newcastle disease, **avian influenza** and other viruses: AHZ/2232/2002/5  
For tissues and other materials: AHZ/963A/99/2

**Shipping address:**

Avian Virology  
VLA Weybridge, New Haw, Addlestone, Surrey KT15 3NB, United Kingdom

Packages should be sent by AIR MAIL or AIR FREIGHT. If sending by AIR FREIGHT it is essential that the **AIRWAY BILL NUMBER** is given to us by FAX, telephone, or Email before the arrival of the materials. Packages sent by air freight should be clearly marked: CARE OF TRANSGLOBAL to ensure rapid processing at the airport.

**Notification of shipment:** Please notify the VLA-Weybridge, Avian Virology Laboratory of the shipment details before dispatch.  
Contact: Dr. I. H. Brown  
Direct TEL: 01932 357 339; Direct FAX: 01932 357 239; Email: i.h.brown@vla.defra.gsi.gov.uk  
Dr. D.J. Alexander  
Direct TEL: 01932 357 466; Direct FAX: 01932 357 856; Email: d.j.alexander@vla.defra.gsi.gov.uk
Information for shipping international diagnostic specimens

To the **National Veterinary Services Laboratories (NVSL), Ames, Iowa, USA.**

**Import permit:** Packages containing diagnostic specimens or organisms (infectious materials) imported from foreign locations into the United States must be accompanied by a permit issued by the U.S. Department of Agriculture. The importation permit, with proper packaging and labelling, will expedite clearance of the package through U.S. Customs. One copy of the permit should be attached to the outside of the shipping container and a second copy placed just inside the lid of the outer shipping container. The importation permit can be obtained from the laboratory (NVSL, Ames, Iowa).

**Packaging requirements:** All materials should be in leak-proof containers and packaged to withstand breakage. All materials should be properly labelled.

**Shipping address:**
Director,
National Veterinary Services Laboratories
Diagnostic Virology Laboratory
1800 Dayton Avenue, Ames, Iowa 50010

**Notification of shipment:** Please notify the Diagnostic Virology Laboratory with shipping information (date of arrival, airline/courier, weigh bill number, etc.) as soon as it is available. Fax information to (515) 663-7348 or telephone (515) 663-7551.

**Contact for Avian Influenza:**
Dr. Beverly J Schmitt
Direct Tel +1 515/663-7532; Direct Fax +1 515/663-7348, Email; Beverly.J.Schmitt@usda.gov