



Community vaccinators working with local government to prevent HPAI in Indonesia

'Operational Research in Indonesia for More Effective Control of Avian Influenza' commenced in Indonesia in July 2008. Funded by USAID and the World Bank, the project aims to develop an evidence base for the selection of effective and feasible control alternatives in backyard poultry in Indonesia. These alternatives include mass voluntary vaccination against avian influenza (AI), and AI plus Newcastle disease and are implemented in the context of ongoing field Participatory Disease Surveillance and Response (PDSR) activities. The Food and Agriculture Organization (FAO) is supporting local government and the Ministry of Agriculture to implement the control strategies, and providing ongoing support for PDSR field activities. The FAO team works in close collaboration with JSI Deliver (responsible for procurement of vaccine, cold chain equipment and vaccination supplies, and providing logistical support for project implementation) and the International Livestock Research Institute (ILRI) (responsible for the design of ORI HPAI, supervision of data collection and analysis of the research results).



Two Community Vaccinators demonstrating good vaccination technique in Temanggung, Central Java. (FAO)

FAO has worked with national and local animal health services to train 64 district officers in 16 districts of West Java, Central Java and Yogyakarta provinces as trainers of community vaccinators and community mobilisers. In collaboration with JSI, FAO has also trained these district officers in cold chain and logistics management, and continues to provide technical assistance, logistics support, monitoring and refresher training to these officers and the vaccinators they have trained.

Community vaccinators play a key role in the project. Under the supervision of the district livestock authorities, the vaccinators work at local level to organize the vaccination campaigns which are carried out four times a year.

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Before the campaigns, they discuss the benefits of vaccination with members of their communities and encourage poultry owners to vaccinate their birds. They liaise with local animal health authorities to ascertain the disease status of the villages they are to vaccinate and during the campaigns, they ensure that there is sufficient good quality vaccine for the vaccinations through careful planning and cold chain management. After the campaigns they report the results to their supervisors. Since the first vaccination campaign in July 2008, 1,088 vaccinators have administered approximately 20 million doses of AI vaccine and 10 million doses of Newcastle disease vaccine to village poultry.



A Community Vaccinator in Temanggung, Central Java, vaccinates chickens belonging to villagers with the assistance of his wife. He is also a volunteer with Red Cross Indonesia and a VAIC (FAO)

In Temanggung district, one of the 16 districts participating in the Operational Research Project, several of the persons selected and trained as community vaccinators are also Village Avian Influenza Coordinators (VAIC). VAIC are community level volunteers trained by the USAID-funded Community-Based Avian Influenza Control Project, implemented by Development Alternatives Inc. The VAICs form part of the passive surveillance network that is so important to the PDSR program. As Community Vaccinators, the VAICs receive training about diseases affecting village poultry, disease control measures, the use of vaccination as a tool in disease control, cold chain management and waste disposal, community mobilisation and the practical aspects of vaccination. This complements their knowledge and experience as VAICs and has enabled them to be more effective in working with PDSR officers, poultry owners and helping to raise awareness of HPAI and its effects on poultry and communities. This increased range of activities complements the PDSR program and contributes to the overall HPAI Control Program.

SMS Gateway data collection in Bangladesh

Bangladesh is conducting active Highly Pathogenic Avian Influenza (HPAI) surveillance in 150 out of 487 sub-districts as part of an USAID funded FAO project. A total of 450 Community Animal Health Workers (CAHW), 50 Additional Veterinary Surgeons (AVS) and 150 Upazilla Livestock Officers (ULOs) are using Short Message Service (SMS) gateway (i.e. method of sending and receiving SMS messages between computers and mobile phones) to collect data and report on disease and death in poultry. Since October 2008, 21 HPAI outbreaks out of a total of 35 have been detected through this active surveillance programme. The SMS reporting structure is rather simple: at the end of the working day, each CAHW sends a SMS message with the total number of all investigated poultry (chickens, ducks and other birds) and their health status (the number of sick and dead birds) to the SMS gateway system. This data is used to; A) monitor trends in disease and mortality in poultry, and B) monitor who is working that day. Additionally, CAHWs send flash reports by SMS on suspected outbreaks according to a case definition. The system then automatically contacts the ULO in the same area by SMS, who initiates an investigation by sending an AVS or visits the suspect outbreaks him/herself. After the investigation, the ULOs and AVS send a SMS message to the gateway server to declare the suspect outbreak as negative or report that it may require further (diagnostic) tests. Initially a Gateway server receiving these messages was located at the Department of Livestock Services in Dhaka, the capital. Currently the system is internet based. Specialised staff monitor the change in mortality and morbidity rates and perform spatial and temporal analysis against concurrent HPAI outbreaks and monitor the number of suspect cases and the results of the ULOs and AVS investigations. The result of the analysis is submitted to the Chief Veterinary Officer, used in workshops to sensitise staff and farmers, donor meetings as well as in periodic project reporting. This real-time reporting using SMS has been contributing to effective HPAI outbreak response and control. The key to the success may be its simple approach and clearly defined work-sharing by using familiar tools (mobile phones).

MOST RECENT HPAI OUTBREAKS 2006-09

Note: This list has been compiled on the basis of information up to 30 June 2009.

2009

June	Bangladesh, China, Egypt, Russian Federation, Viet Nam
May	India, Indonesia, Mongolia
April	China (Hong Kong)
March	Germany
February	Lao PDR, Nepal

2008

December	Cambodia
November	Thailand
September	Togo
July	Nigeria
June	Pakistan
May	Japan, Korea (Republic of), United Kingdom
March	Turkey
February	Switzerland , Ukraine
January	Israel, Saudi Arabia

2007

December	Benin, Iran, Myanmar, Poland
November	Romania
October	Afghanistan
August	France
July	Czech Republic
June	Ghana, Malaysia
April	Kuwait
January	Côte d'Ivoire, Hungary

2006

August	Sudan
July	Spain
June	Mongolia , Niger
May	Bulgaria , Burkina Faso, Denmark
April	Djibouti, Sweden, West Bank & Gaza Strip
March	Albania, Austria, Azerbaijan, Cameroon, Croatia , Greece , Jordan, Kazakhstan, Serbia, Slovenia
February	Bosnia-Herzegovina , Georgia , Iraq, Italy , Slovakia

Green: areas which never had outbreaks in poultry

Sources: World Organisation for Animal Health (OIE), European Commission (EC), FAO and national governments

This overview is produced by the FAO-GLEWS team, which collects and analyses epidemiological data and information on animal disease outbreaks as a contribution to improving global early warning under the framework of the Global Early Warning for Transboundary Animal Diseases (TADs) including Major Zoonoses. glews@fao.org

WORLDWIDE

One hundred and thirty-seven outbreaks of H5N1 HPAI in poultry were reported officially worldwide in April 2009 from five countries: Bangladesh, China, Egypt, Indonesia and Viet Nam. One case of H5N1 infection was confirmed in a wild bird in Hong Kong SAR, China, during the same period. The number of reported outbreaks/cases by country and their location are illustrated in Figures 1 and 2, respectively.

FIGURE 1
H5N1 HPAI outbreaks reported in poultry worldwide in April 2009
(Source: FAO EMPRES-i)

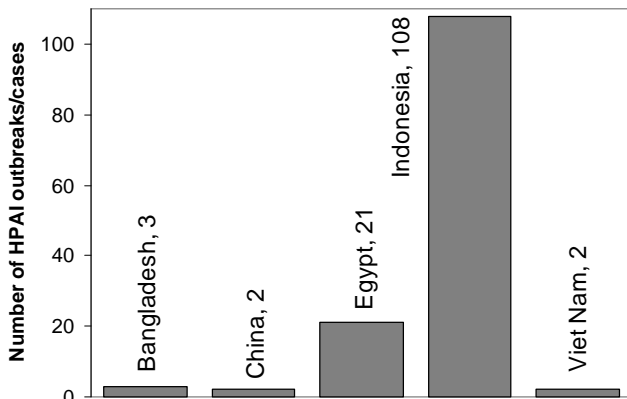


Figure 2

H5N1 HPAI outbreaks reported in poultry in April 2009
(Source: FAO EMPRES-i)



NOTE: H5 cases are represented for outbreaks where N-subtype characterization is not being performed for secondary cases or if laboratory results are still pending. Countries with H5 and H5N1 occurrences only in wild birds are not considered infected countries according to OIE status. The original data have been collected and aggregated at the most detailed administrative level and for the units available for each country.

The evolution of the number of outbreaks/cases over the last six months by species group (wild or domestic) and by geographical area is represented in Figures 3 and 4, respectively. The evolution of the

number of confirmed cases of H5N1 AI infections in humans reported to the World Health Organization (WHO) by country between November 2003 and April 2009 is illustrated in Figure 5.

FIGURE 3
Weekly number of reported H5N1 HPAI outbreaks/cases per species (poultry vs. wild birds) between November 2008 and April 2009
(Source: FAO EMPRES-i)

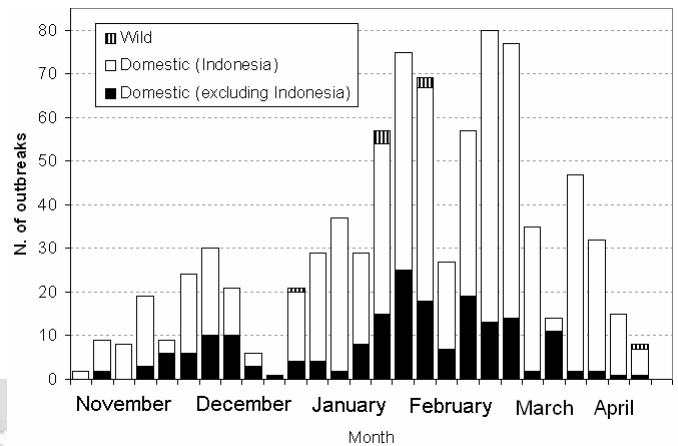


FIGURE 4

Weekly number of H5N1 HPAI outbreaks/cases reported by region between November 2008 and April 2009
(Source: FAO EMPRES-i)

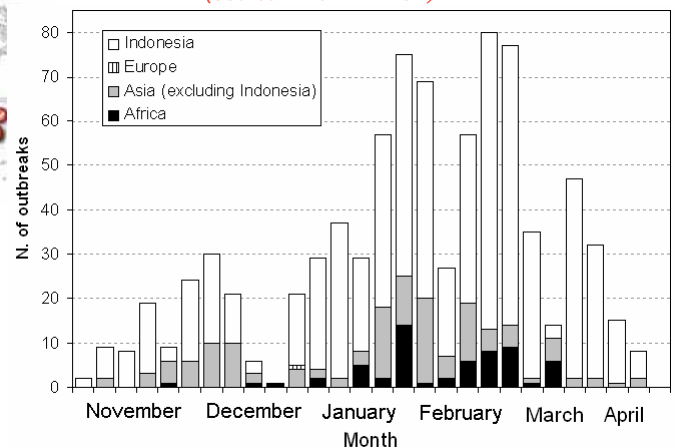
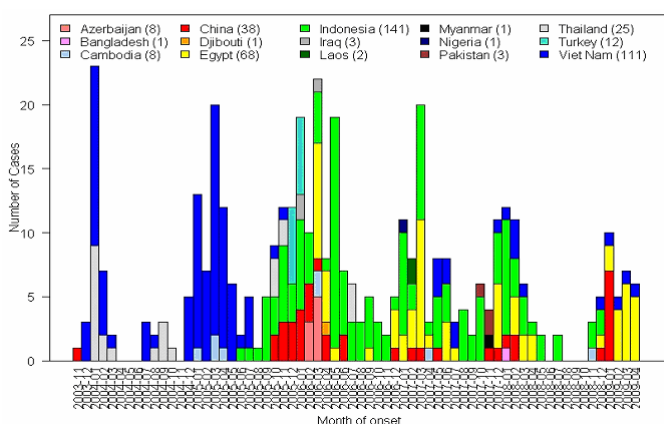


FIGURE 5
Confirmed cases of H5N1 AI infections reported in humans by country between November 2003 and April 2009
(Source: World Health Organization)

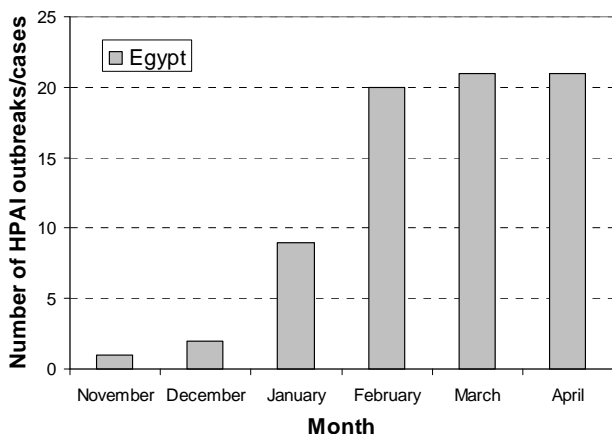


SITUATION BY CONTINENT/REGION

Africa

Confirmed outbreaks of H5N1 HPAI in Africa over the last six months are presented in Figure 6.

FIGURE 6
Number of reported H5N1 HPAI outbreaks in poultry between November 2008 and April 2009 in Africa
(Source: FAO EMPRES-i)



Egypt, which reported its first H5N1 HPAI outbreak in February 2006, is considered endemic with regular reporting of outbreaks in almost all of the 29 governorates. The Egyptian veterinary authorities reported 21 H5N1 HPAI outbreaks in poultry in 13 governorates: Alexandria (2), Bani Suwayf (1), Gharbia (2), Giza (1), Kafr el-Sheikh (3), Kalubia (1), Luxor (1), Minya (2), Minufiyah (2), Sharkia (1), Sixth October (3), Suez (1), and Sohag (1). Almost all these outbreaks were in household/village poultry production systems, with only two cases being reported from commercial farms. Although the vaccination status of most of the affected birds is

not reported, there is an indication that outbreaks occurred in both vaccinated and unvaccinated birds.

Participatory disease surveillance (PDS) activities are now implemented in three governorates, namely Sharkia, Behaira and Gharbeia. During April 2009, the PDS teams detected three out of the 19 HPAI confirmed outbreaks in the household poultry sector. The PDS teams suspected outbreaks that matched the HPAI case definition in eight villages. Of these, H5 HPAI cases were confirmed in only three villages.

Surveillance activities are being undertaken targeting both poultry and migratory wild birds around selected important bird areas (IBAs) during winter. In addition, poultry farms are required to test their birds and receive certification (HPAI negative status) prior to any transportation. During April 2009, 1,736 samples were collected for this purpose and none were positive. Compliance with certification for poultry transportation is sub-optimal, as only registered farms seek such services. During the reporting period, active and passive surveillance was carried out on 13 commercial poultry farms, of which two were confirmed to have H5N1 HPAI infections. Similarly, 161 samples were collected from the backyard/household poultry sector, of which 19 were confirmed positive. Fifty-one samples were also collected at road check points and only one was proved positive for HPAI.

The current government policy is to vaccinate poultry in backyard/household settings twice a year and to allow commercial poultry companies to vaccinate their flocks with registered vaccines of their choices. Although there is no official vaccination data, it is assumed that vaccines are widely used in the commercial poultry sectors. There are at least 21 imported vaccines used in Egypt. Only inactivated vaccines are used, mostly H5N1 Re-1 Chinese vaccine type for household poultry and H5N2 vaccine type for commercial farms. All AI vaccines used in Egypt are imported.

FAO, in collaboration with the General Organization of Veterinary Services (GOVS), has conducted an assessment of the current AI mass vaccination strategy in Egypt. The results of the assessment revealed that the current strategy has limited impact on HPAI control. Vaccination in the household/village poultry sector has low coverage and flock immunity levels, and malpractices may have contributed to spread of infection. GOVS has no data on AI vaccination programmes and practices in the commercial sector. There is no post-vaccination monitoring in the household/village and commercial poultry sectors. The study emphasized that vaccination against H5N1 HPAI should only be

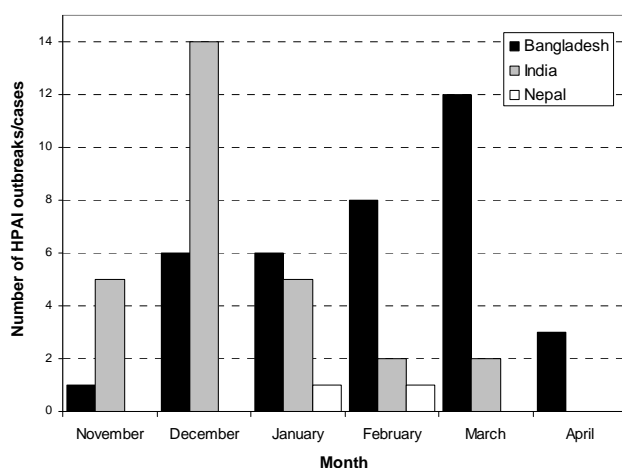
considered as a tool within a broader disease control package, including improvement of surveillance systems, outbreak investigation and disease management, and application of bio-security measures along the poultry value chain. The assessment study identified limitations and malpractices of the current mass AI vaccination strategy and made concrete recommendations for risk-based targeted approaches with post-vaccination monitoring and exit strategies.

During the reporting period (April 2009), the Egyptian health authorities confirmed eight new human HPAI H5N1 cases (3 deaths) in six different governorates: two baby boys (around 2 years old) from Behaira, a 6-year old boy from Kalubia, a 33-year old woman from Kar El-sheikh (fatal), a 25-year old woman from Cairo (fatal), a 1.5-year old girl from Kar El-sheikh, a 4-year old girl from Sohag (fatal) and a 34-year old woman from Gharbia. All these cases had histories of close contact with dead and/or sick poultry. As indicated above, most of the human cases were in children under six years of age. In April 2009, the total number of H5N1 human infections in Egypt reached 68, with 26 being fatal cases.

South and Central Asia

Confirmed outbreaks/cases of H5N1 HPAI in South Asia over the last six months are presented in Figure 7.

FIGURE 7
Number of reported H5N1 HPAI outbreaks in poultry between November 2008 and April 2009 in South Asia
(Source: FAO EMPRES-i)



In **Bangladesh**, three outbreaks of H5N1 HPAI were reported in Gaibandha, Narsinghdi, and Dhaka Districts. With outbreaks of H5N1 HPAI reported almost every month since the first occurrence in February 2007, the status of the country is believed to be endemic. Poultry vaccination against H5N1

HPAI is prohibited by the government. As of 30 April 2009, a total of 323 outbreaks were recorded in 47 out of 64 districts in both commercial farms and backyard holdings. Nearly 1.7 million birds have been culled as of 30 April 2009. FAO is coordinating and supporting active surveillance that is currently conducted in 150 upazillas (sub-districts) across the country, including the innovative use of the Short Message Service (SMS) gateway (method of sending and receiving SMS messages between mobile phones and a computer) as a reporting tool. Daily, 450 community animal health workers employed by the active surveillance programme send SMS coded text messages to the Department of Livestock Services, reporting disease and death in poultry. SMSs of suspected AI events are automatically forwarded to the livestock officer in the area, who starts an investigation.

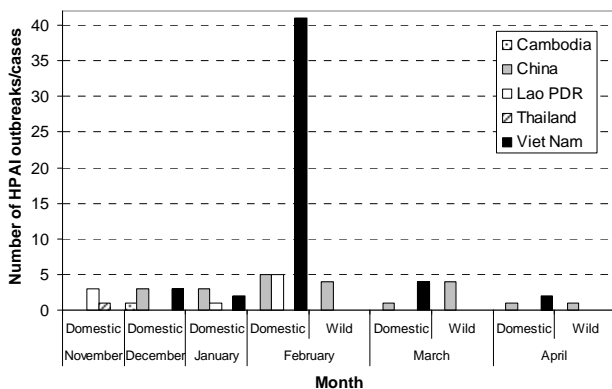
In **India**, no outbreaks were reported during April 2009. This ends a wave of outbreaks that started in November 2008, over five months after the previously reported outbreak. During the period between 30 March 2009 and 5 May 2009, 23,041 active surveillance samples were received at the High Security Animal Disease Laboratory (HSADL), Bhopal. Testing was completed on 24,562 samples and another 3,774 are pending. The periodical reports (available on-line at <http://www.dahd.nic.in/birdflue.htm>) also include the number of samples received and tested per state. An Uttar Pradesh Wildlife Department project has collected about 240 samples since January 2009, mostly from migratory bird species. Another 150 wild bird samples have been submitted from samples collected at Chilika Lagoon, Orissa and Koothankulam Reserve, Tamil Nadu, from birds trapped as part of an FAO-facilitated satellite tag marking project (http://www.fao.org/avianflu/en/wildlife/sat_telemetry_india.htm). Samples are in the process of being tested at HSADL. The project is to continue for a three-year period.

In **Nepal**, no HPAI outbreak was reported during April 2009. Measures taken seem to have succeeded in containing the disease to just one district (Jhapa). The major threat is to the intensive commercial production areas in the central region. The haemagglutination (HA) gene from the virus isolated from the index case was sequenced at the Veterinary Laboratory Agency (VLA), demonstrating ~99% similarity with publicly available sequences from contemporary viruses in Eastern Asia, including viruses originating from India (West Bengal).

South East Asia

Confirmed outbreaks/cases of H5N1 HPAI in South East Asia over the last six months are presented in Figures 8 and 9.

FIGURE 8
Number of H5N1 HPAI reported outbreaks/cases in poultry/wild birds between November 2008 and April 2009 in South East Asia (excluding Indonesia)
(Source: FAO EMPRES-i)



In **Cambodia**, after the human case and poultry outbreak reported in Kandal Province in December 2008, no additional H5N1 HPAI events have been reported. Cambodia regularly reports the results obtained from their surveillance activities through an animal health hotline at the National Veterinary Research Institute (NaVRI) that receives reports on suspicious cases from the field. During April 2009, NaVRI received five calls reporting sick and dying poultry, and received 17 samples of different types of sparrows collected by the Wildlife Conservation Society, all with negative results.

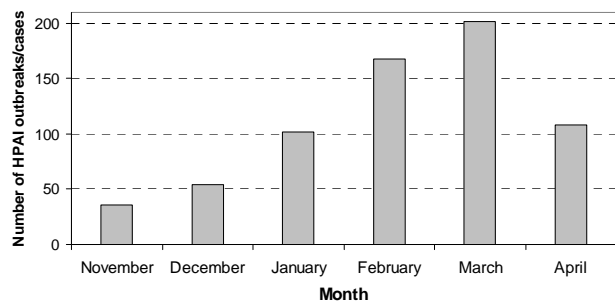
In **China**, the carcass of a feral pigeon found in Tuen Mun, Hong Kong, SAR, tested positive for the H5N1 virus. In addition, an HPAI outbreak was reported in a live chicken market in Tibet.

On mainland China, vaccination coverage officially reported is still very high in all provinces. Mean vaccination coverage through September 2008 is reported to be higher for most provinces than for the same period in 2007. Additionally, all but one province, Xinjiang, reported 80% vaccination coverage or higher

Indonesia continues to report a high number of H5N1 HPAI outbreaks in poultry, as it has for the past three years. HPAI is endemic on Java, Sumatra, and Sulawesi Islands, with sporadic outbreaks reported from other areas. Incidence varies widely. Only two of its 33 provinces have not reported the occurrence of H5N1 HPAI. The high number of reported outbreaks each month is partially explained

by the implementation of the 'participatory disease surveillance and response' (PDSR)¹ programme that targets village-type poultry production systems (both backyard and small-scale intensive) and reports evidence of virus circulation in the village environment. The programme is supported by FAO with USAID financial support and is operating in 331/448 (74%) districts through 31 Local Disease Control Centres (LDCCs) in 31 out of 33 provinces in Java, Sumatra, Bali, Sulawesi and Kalimantan, including all known endemically infected areas. Larger and less densely-populated provinces report HPAI outbreaks more infrequently than more densely populated provinces. H5N1 HPAI outbreaks in Indonesia affect the smaller, more dispersed poultry populations, while no outbreaks are being reported by medium- or large-scale poultry producers.

FIGURE 9
Number of reported outbreaks of H5N1 HPAI between November 2008 and April 2009 in Indonesia in poultry
(Source: FAO EMPRES-i)



During April 2009, PDSR officers visited 2,560 villages. The prevalence of infection for April was 11.9%. This is lower than the March prevalence of 15%. During the previous 6 months, PDSR officers visited 17.5% of the villages (11,342) in the 331 districts under PDSR surveillance. The average village infection rate during the previous six months was 11.6%. Since May 2008, 32.9% of villages under PDSR coverage have been visited.

In April 2009, for the second consecutive month, **Lao People's Democratic Republic** reported no H5N1 HPAI outbreak.

¹ PDSR case definition in Indonesia: *When poultry mortality events are encountered in which more than one bird died suddenly, with or without clinical signs, Participatory Disease Surveillance and Response (PDSR) teams carry out an influenza type A rapid test. A mortality event consistent with clinical HPAI and a positive rapid test in affected poultry is considered a confirmed detection of HPAI in areas where HPAI has previously been confirmed by laboratory testing.*

Thailand has not reported any H5N1 HPAI activity after the two outbreaks recorded in October and November 2008.

In **Viet Nam**, two H5N1 HPAI outbreaks were reported on poultry farms during April 2009 in Quang Ngai and Thanh Hoa Provinces. Disease control measures include stamping out of infected farms, movement restrictions for 21 days, compensation (up to 70% of market value; around USD 1.3/bird) and vaccination. Vaccination is implemented throughout the country in two annual campaigns (March/April and October/November), but in some areas age-based vaccination is being applied. By the end of April 2009, 107.9 million poultry were reported vaccinated during the first round, of which 54.2 million ducks and 53.7 million chickens. Recently the Department of Animal Health changed the vaccination regulation, with full financial support now available for vaccination of commercial flocks below 2000 head/flocks (instead of 500 previously applied).

Based on the monitoring of surveillance activities, three currently circulating virus clades have been isolated: 1) HA clade 1 (predominant in Southern Viet Nam and also isolated in Cambodia); 2) HA clade 2.3.4 (predominant in Northern Viet Nam and also circulating in China); and 3) HA clade 7 (detected in poultry seized at the Chinese border and at markets near Hanoi on active surveillance samples).

There was one human case: a 23-year old woman from Thanh Hoa Province, who died on 22 April 2009. Investigation into the source of infection indicated that poultry had died of H5N1 HPAI around her household. Of the 111 human cases confirmed to date in Viet Nam, 56 have been fatal.

Europe

The last case in Europe was reported in a wild duck shot on 10 January 2009 in Bavaria, Germany. This was the first and, so far, only case of H5N1 HPAI infection in Europe in 2009. The last H5N1 HPAI event was detected in October 2008 on a mixed poultry farm, also in Germany.

Non-infected countries/territories

There have been no HPAI outbreaks reported in the **Pacific Community**, **Oceania**, **Papua New Guinea** (outbreaks have occurred in the Indonesian province of West Papua) or **the Philippines**. To date, no outbreaks have been reported in **Timor-Leste**, but here surveillance capacity is weak. In South Asia, **Sri Lanka**, **Maldives**, and **Bhutan**

have not experienced disease. Some Asian countries regularly report the negative results obtained from their surveillance activities and suspected cases. **Bhutan** produces a clinical surveillance report weekly for each administrative level (available at <http://www.moa.gov.bt/birdflu/main/reports.php?show=all>).

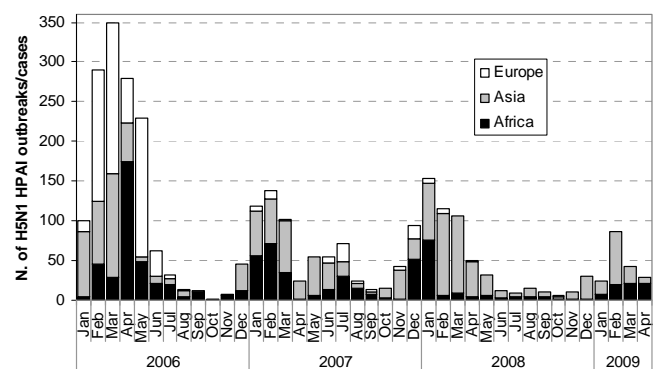
Iraq, where the last H5N1 HPAI outbreak was in February 2006, reported recent laboratory results of their surveillance activities for April 2009 for all governorates except Kurdistan Province, in the north of the country. All samples taken were negative for H5N1 [poultry farms (603), backyard poultry (1,174), game and wild birds (1,379), and markets and slaughterhouses (5,053)]. Poultry farms in Babel and Najaf Governorates were found infected with a H9N2 low pathogenic strain of AI.

CONCLUSIONS

Since 2003, 62 countries/territories have experienced outbreaks of H5N1 HPAI. Effective control measures for outbreaks in poultry have been associated with elimination of the virus and therefore reduced risk of human infections in most of these countries. However, H5N1 HPAI remains entrenched in poultry in parts of Asia and Africa (Egypt) and thus the risk of human infection remains, as proven by the nine human cases reported this month in two countries considered endemic (Egypt and Viet Nam).

Data from previous years have shown a peak in the number of outbreaks/cases during the January-March period in both poultry outbreaks (Figure 12) and human cases (Figure 5) with February 2009 representing the peak in this period.

FIGURE 10
Number of reported H5N1 HPAI outbreaks/cases by continent since January 2006
(Source: FAO EMPRES-i)



It is difficult to undertake thorough epidemiological analysis of the situation of H5N1 HPAI globally,

based on official disease reporting and the poor disease outbreak investigations carried out in some affected countries related to risk factors for introduction and spread of H5N1 HPAI in those countries. HPAI prevalence and incidence are likely to be much greater. The disease remains active in those countries considered still infected: Bangladesh, China, Egypt, Indonesia and Viet Nam. The disease seems to be under control in those countries that experienced a re-emergence of HPAI over the last few months, namely Cambodia, India, Lao People's Democratic Republic, Nepal and Thailand. It remains unknown whether these new cases occurred because of (a) re-introduction of the infection, or (b) the undetected circulation of the virus at a low level.

April 2009 showed similar activity when compared to April 2007 and 2008, both in terms of affected countries (5 vs. 8 - Figure 11) and number of outbreaks (21 vs. 44 & 23 - Figure 12). When compared to April 2006, however, H5N1 HPAI activity seems to be much lower in April 2009. April 2006 experienced particularly high activity (18 countries reporting 267 outbreaks/cases), reflecting when the panzootic was spreading across Europe. Although there has been an improvement in disease awareness, outbreaks/cases of HPAI are still likely to be under-estimated and under-reported in some countries and regions because of limitations in the capacity of veterinary services to implement sensitive and effective disease surveillance for H5N1 HPAI, and because of the weakness of compensation schemes.

FIGURE 11
Number of countries by continent that reported H5N1 HPAI in April 2006, 2007, 2008 and 2009
(Source: FAO EMPRES-i)

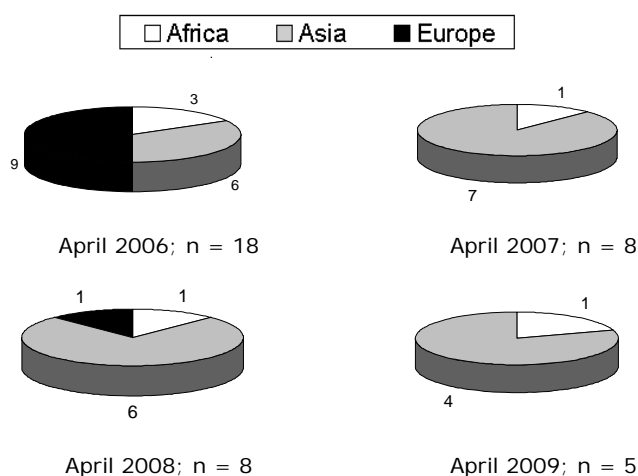
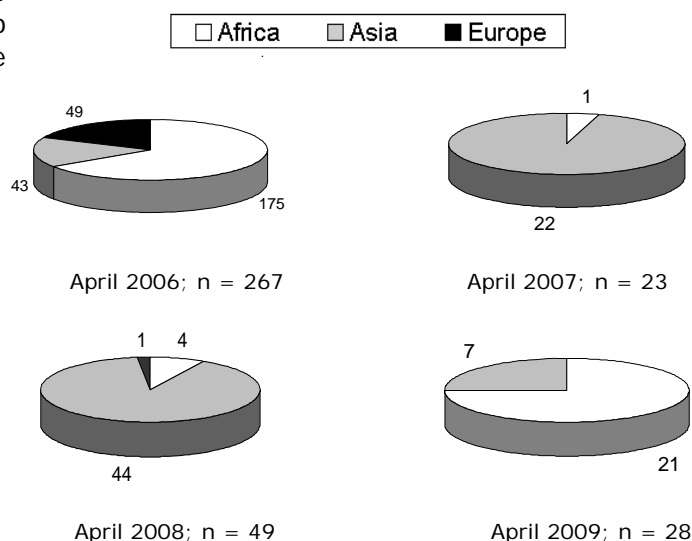


FIGURE 12
Number and distribution of H5N1 HPAI outbreaks/cases by continent in April 2006, 2007, 2008 and 2009
(Source: FAO EMPRES-i; Indonesia data are not included, because the epidemiological unit definition for the PDSR data was modified from household level to village level in May 2008 and is not comparable)



An animated map showing the evolution of outbreaks over the last six months including April 2009 is available at:

www.fao.org/ag/againfo/programmes/en/empres/maps.html.

EMPRES welcomes information on disease events or surveillance reports on H5N1 HPAI (and other TADs), both rumours and official information. If you want to share any such information with us, please send a message to gilews@fao.org.

AT A GLANCE

The latest HPAI outbreaks for the period 1 April 2009 – 30 June 2009

Note AIDEnews publishes reports of **confirmed HPAI cases** using the following sources: OIE, European Commission, FAO and national governments.

AFRICA

EGYPT

Samples taken from poultry in 16 of the 29 Governorates namely: 6th of October, Al Menia, Alexandria, Ash Sharqiyah, Beni Suef, Dakahlia, Dumyat, Gharbia, Giza, Kafr el Sheikh, Luxor, Menofia, Port Said, Qalyubiyah, Sharkia, Sohag and Suez Governorates were found positive for HPAI.

ASIA

BANGLADESH

HPAI outbreaks have been reported in poultry farms in Chittagong Division (Chittagong, Cox's Bazar City), Dhaka Division (Palash and Savar Upazillas) and Rajshahi Division (Shaghata Upazilla).

CHINA

Reports have been submitted to OIE regarding an H5N1 HPAI outbreak started on 12 April 2009 at a live poultry wholesale market in Bayi, Chengguan District, Lhasa City, Tibet Autonomous Region. 1,500 out of 3,579 poultry died; In Qinghai Province, an HPAI outbreak was suspected on 8 May 2009 as more than 100 migratory birds found dead in Genggahu Lake, Hainan Prefecture. As of 16 May, a total of 121 wild birds had died, including 107 Great Crested Grebes, 3 bar-headed geese and 11 brown-headed gulls. H5N1 HPAI was confirmed by the National AI Reference Laboratory on 17 May 2009; another HPAI outbreak was also detected in migratory birds in Hainan Prefecture, Qinghai Province. A total of 162 wild birds have died and H5N1 was confirmed on 4 June 2009.

CHINA (HONG KONG SAR)

A dead feral pigeon found at Leung Tak Street, Tuen Mun, Hong Kong SAR on 27 April 2009 was confirmed to be H5N1 HPAI positive according to the Agriculture, Fisheries and Conservation Department (AFCD).

INDIA

One H5N1 HPAI outbreak in village poultry was reported in Kantor Village, Hemtabad Block, Uttar Dinajpur District, West Bengal on 27 May 2009.

INDONESIA

In May 2009, PDSR officers visited 1,709 villages of which 156 (9.1%) were infected. This was lower than the April infection rate of 11.0%. On the day of 31 May, and in comparison with the situation on the day of 30 April, a slightly decreased percentage (2.0% from 2.2%) of villages were classified as 'Infected' (HPAI compatible event supported by a positive antigen test result). Bali continued to have infected villages; Kalimantan and Sulawesi Utara continued to have no reported HPAI cases. Since December 2008, PDSR officers visited 10,409 villages (16.1%) in the 331 Districts under PDSR surveillance, of these, 13.3% were classified as infected at the time of their visit. Cases over the last 6 months were concentrated in Sumatera Barat, Riau, Java and parts of Sulawesi other than Gorontalo and Sulawesi Utara.

MONGOLIA

The government reported to OIE that the samples taken from migratory swans (9 deaths, 1 destroyed) found in Doitiin Tsagaan Lake, Ugii-nuur Soum, Arkhangai Aimag had tested positive for H5 by PCR at the National Laboratory.

RUSSIAN FEDERATION

On 11 June 2009, 58 Great Crested Grebes (*Podiceps cristatus*) were found dead on the coast of Uvs Noor Lake, which lies on the border between Mongolia and the Russian Federation. Samples were tested positive for influenza A H5N1 and the virus was isolated.

VIET NAM

The Department of Animal Health (DAH) reported HPAI outbreaks in 5 out of the 64 provinces: [North] Quang Ninh Province (Yen Hung District), Thanh Hoa Province (Quan Hoa District); [Central] Quang Ngai Province (Son Tinh District); [South] Dong Thap (Cao Lanh District), Vinh Long (Tan Binh District). Viet Nam has been using vaccination as one of the tools to control HPAI. Almost all recent outbreaks occurred in unvaccinated flocks, flocks not fully vaccinated with the 2 doses as required or flocks bred between the 2 rounds of the national campaigns.

SUMMARY OF CONFIRMED HPAI OUTBREAKS (as of 30 June 2009)

Sources: OIE, European Commission (EC), FAO and national governments – WHO for human cases/deaths

Note: Highlighted countries indicate those in which there has been only one officially confirmed outbreak or occurrence

AFRICA	First outbreak	Latest outbreak	Animals affected to date	Human cases / deaths to date
Benin	7 November 2007	15 December 2007	Domestic poultry	-
Burkina Faso	1 March 2006	20 May 2006	Domestic poultry - wild birds	-
Cameroon	21 February 2006	28 March 2006	Domestic poultry – wild birds	-
Côte d'Ivoire	31 March 2006	31 January 2007	Domestic poultry – wild birds	-
Djibouti	6 April 2006	6 April 2006	Domestic poultry	1 / 0
Egypt	17 February 2006	16 June 2009	Domestic poultry – wild birds	78 / 27
Ghana	14 April 2007	13 June 2007	Domestic poultry	-
Niger	6 February 2006	1 June 2006	Domestic poultry	-
Nigeria	16 January 2006	22 July 2008	Domestic poultry – wild birds	1 / 1
Sudan	25 March 2006	4 August 2006	Domestic poultry	-
Togo	6 June 2007	8 September 2008	Domestic poultry	-
ASIA	First outbreak	Latest outbreak	Animals affected to date	Human cases / deaths to date
Afghanistan	2 March 2006	2 October 2007	Domestic poultry – wild birds	-
Bangladesh	5 February 2007	22 June 2009	Domestic poultry	1 / 0
Cambodia	12 January 2004	16 December 2008	Domestic poultry – wild birds	8 / 7
China	20 January 2004	8 May 2009	Domestic poultry – wild birds	38 / 25
China (Hong Kong SAR)	19 January 2004	27 April 2009	Wild birds	-
India	27 January 2006	20 May 2009	Domestic poultry	-
Indonesia	2 February 2004	May 2009	Domestic poultry – pigs (with no clinical signs)	141 / 115
Japan	28 December 2003	7 May 2009 (raccoons, seropositive)	Domestic poultry – wild birds – raccoons (with no clinical signs)	-
Kazakhstan	22 July 2005	10 March 2006	Domestic poultry – wild birds	-
Korea, Rep. of	10 December 2003	12 May 2008	Domestic poultry – wild birds	-
Lao PDR	15 January 2004	25 February 2009	Domestic poultry	2 / 2
Malaysia	19 August 2004	2 June 2007	Domestic poultry – wild birds	-
Mongolia	10 August 2005	22 May 2009	Wild birds	-
Myanmar	8 March 2006	23 December 2007	Domestic poultry	1 / 0
Nepal	8 January 2009	17 February 2009	Domestic poultry	-
Pakistan	23 February 2006	16 June 2008	Domestic poultry – wild birds	3 / 1
Thailand	23 January 2004	10 November 2008	Domestic poultry – wild birds – tiger	25 / 17
Viet Nam	9 January 2004	18 June 2009	Domestic poultry	111 / 56
NEAR EAST	First outbreak	Latest outbreak	Animals affected to date	Human cases / deaths to date
Iran	2 February 2006	10 December 2007	Domestic poultry - wild birds	-
Iraq	18 January 2006	1 February 2006	Domestic poultry – wild birds	3 / 2
Israel	16 March 2006	1 January 2008	Domestic poultry	-
Jordan	23 March 2006	23 March 2006	Domestic poultry	-
Kuwait	23 February 2007	20 April 2007	Domestic poultry – wild birds - zoo birds	-
Saudi Arabia	12 March 2007	29 January 2008	Domestic poultry	-
West Bank & Gaza Strip	21 March 2006	2 April 2006	Domestic poultry	-

EUROPE	First outbreak	Latest outbreak	Animals affected to date	Human cases / deaths to date
Albania	16 February 2006	9 March 2006	Domestic poultry	-
Austria	10 February 2006	22 March 2006	Wild birds – cats	-
Azerbaijan	2 February 2006	18 March 2006	Wild birds – domestic poultry – dogs	8 / 5
Bosnia-Herzegovina	16 February 2006	16 February 2006	Wild birds	-
Bulgaria	31 January 2006	30 May 2006	Wild birds	-
Croatia	21 October 2005	24 March 2006	Wild birds	-
Czech Republic	27 March 2006	11 July 2007	Wild birds – domestic poultry	-
Denmark	12 March 2006	26 May 2006	Wild birds – domestic poultry	-
France	17 February 2006	14 August 2007	Wild birds – domestic poultry	-
Georgia	23 February 2006	23 February 2006	Wild birds	-
Germany	8 February 2006	6 March 2009 (mallard, wild)	Wild birds – domestic poultry – cats – stone marten	-
Greece	30 January 2006	27 March 2006	Wild birds	-
Hungary	4 February 2006	23 January 2007	Wild birds – domestic poultry	-
Italy	1 February 2006	19 February 2006	Wild birds	-
Poland	2 March 2006	16 December 2007	Wild birds – domestic poultry	-
Romania	7 October 2005	6 December 2007 (cat)	Wild birds – domestic poultry – cat	-
Russian Federation	15 July 2005	11 June 2009	Domestic poultry – wild birds	-
Serbia	28 February 2006	16 March 2006	Wild birds – domestic poultry	-
Slovakia	17 February 2006	18 February 2006	Wild birds	-
Slovenia	9 February 2006	25 March 2006	Wild birds	-
Spain	7 July 2006	7 July 2006	Wild birds	-
Sweden	28 February 2006	26 April 2006	Wild birds – domestic poultry – game birds – mink	-
Switzerland	26 February 2006	22 February 2008	Wild birds	-
Turkey	1 October 2005	9 March 2008	Domestic poultry – wild birds	12 / 4
Ukraine	2 December 2005	11 February 2008	Wild birds – domestic poultry – zoo birds	-
United Kingdom	30 March 2006	22 May 2008 (H7N7)	Wild birds – domestic poultry	-

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