

HPAI outbreaks reported in this publication refer to officially confirmed cases only. The information is compiled from the following sources: World Organisation for Animal Health (OIE), national governments and their ministries, and the European Commission (EC).

OFFLU contribution to the WHO Vaccine Composition Meeting 20-22 February 2012



FAO and the World Organisation for Animal Health (OIE) and their OFFLU network of experts recently contributed to the World Health Organization's annual Vaccine Composition Meeting held 20-22 February. The development of virus vaccines for influenza continues to be a core component of the WHO's global strategy for pandemic preparedness, and the OFFLU network's surveillance of animal influenza viruses is likewise a fundamental pillar of that strategy. Identification of novel viruses and emerging strains of influenza and testing

of their potentials to generate an immune response are periodically reviewed by WHO, bringing the expertise of the animal health and public health sectors together to do so.

Novel H5N1 and H9N2 avian influenza genetic and antigenic data generated through the OFFLU laboratory network were presented and shared with the WHO Global Influenza Surveillance and Response System (GISRS) Network, and compared with the most up to date epidemiological information on influenza circulation among animals worldwide. For the February meeting, 36 new H5 viruses from poultry and wild birds from Bangladesh, China (Tibet), Egypt, Iran and Nepal representing clades 2.2.1, 2.2.1.1 and 2.3.2.1 were analyzed. In parallel, recently isolated viruses from Bangladesh, Egypt and Nepal were also antigenically analysed by 3 OFFLU laboratories (Italy's Istituto Zooprofilattico Sperimentale delle Venezie (IZSve), the Australian Animal Health Laboratory (AAHL) and the United Kingdom's Animal Health and Veterinary Laboratories Agency (AHVLA), using a panel of ferret sera, provided by the WHO Collaborating Centre (CC) of St. Jude Children's Research Hospital. The network also provided 37 novel H9N2 sequences from China, Egypt, Iran, Nepal, Saudi Arabia and the United Arab Emirates. The data shared contributes significantly to the decision process for vaccine selection.

Contents

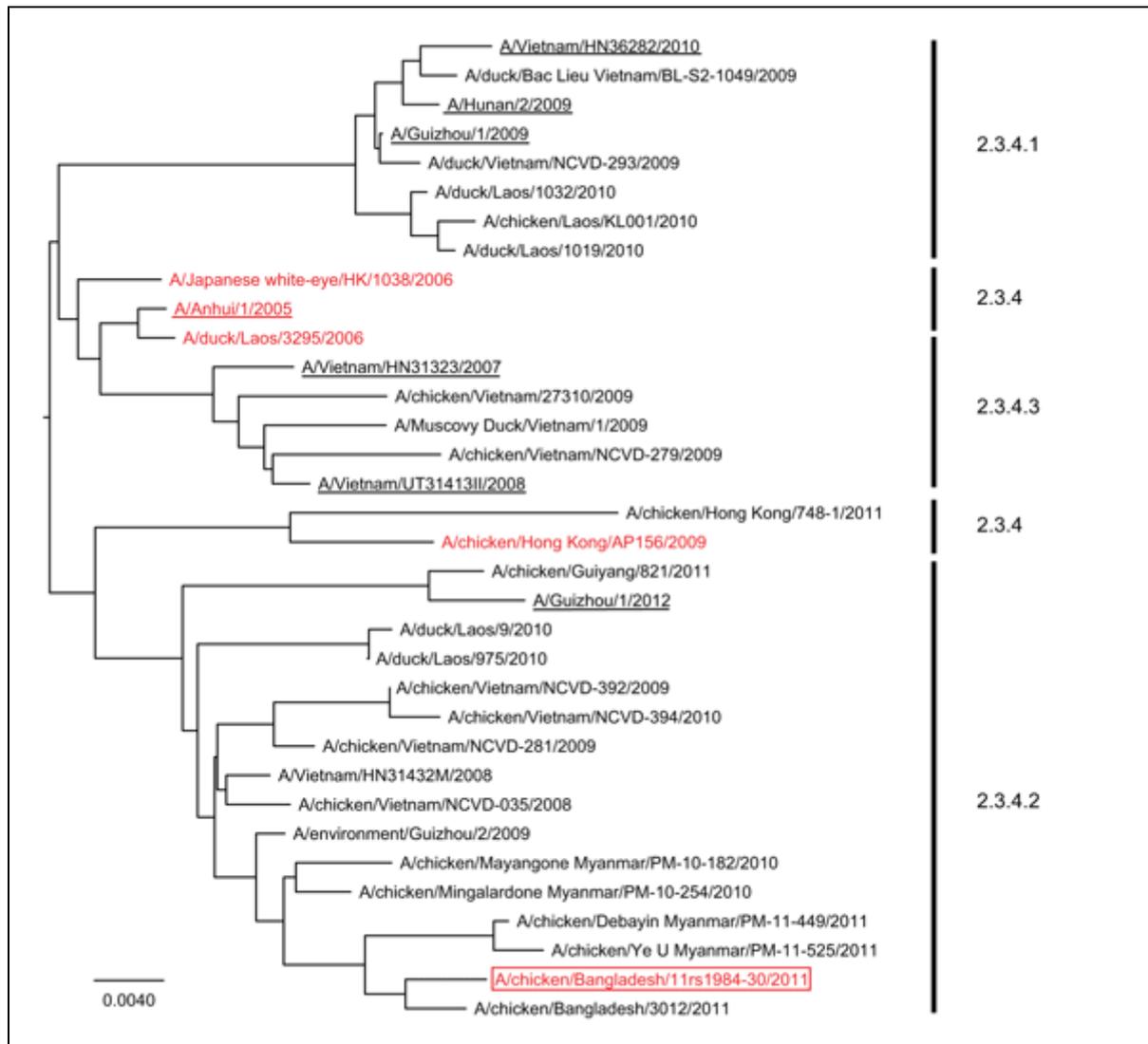
Second FAO-OIE-WHO Joint Scientific Consultation Published	1
At a Glance	4
Summary of confirmed HPAI outbreaks	7-8

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In a major milestone, for the first time a clade 2.3.4.2 virus strain was selected as a candidate for the preparation of human H5N1 vaccines. The material was provided by the IZSVe, one of the OFFLU laboratories (figure 1). This strain was recently been shipped to the U.S. Centers for Disease Control and Prevention in Atlanta, in order to make it available to the entire WHO Collaborating Center network. The full report from the Vaccine Composition Meeting (“Antigenic and genetic characteristics of zoonotic influenza viruses and development of candidate vaccine viruses for pandemic preparedness”) can be found on the WHO website at: http://www.who.int/influenza/vaccines/virus/characteristics_virus_vaccines/en/

Figure 1
Phylogenetic relationships of A(H5N1) clade 2.3.4 virus HA genes.
A vaccine virus pending final development is shown boxed in red.
Source: WHO



Update on influenza vaccines

Avian influenza vaccines and vaccination strategies applied in H5N1 endemic countries have shown various limitations, mainly due to the late onset of immunity, the low efficacy in ducks, mismatch between field strains and vaccine strains, and poor vaccine delivery. By enabling wide coverage of poultry populations - including duck populations and early onset of immunity - day-old chick (duckling) vaccination can be a tremendous tool in the fight against H5N1. Such new vaccines are arising on the market. There is an urgent need to properly assess their impact on the H5N1 situation at a large scale.

MOST RECENT H5N1 AI OUTBREAKS 2006-2012

Note: This list has been compiled on the basis of information up to 29 February 2012.

2012
February Bangladesh, Bhutan, China (Hong Kong SAR), Egypt, India, Myanmar, Nepal, Viet Nam

2011
December China (Xizang), Indonesia
November Cambodia
October Iran
May Republic of Korea
April West Bank, **Mongolia**
March Japan

2010
June Russian Federation
April Israel, Lao PDR
March **Bulgaria**, Romania

2009
March Germany

2008
November Thailand
September Togo
July Nigeria
June Pakistan
May United Kingdom
March Turkey
February **Switzerland**, Ukraine
January Saudi Arabia

2007
December Benin, Poland
October Afghanistan
August France
July Czech Republic
June Ghana, Malaysia
April Kuwait
January Côte d'Ivoire, Hungary

2006
August Sudan
July **Spain**
June Niger
May Burkina Faso, Denmark
April Djibouti, Sweden
March Albania, **Austria**, Azerbaijan, Cameroon, **Croatia**, **Greece**, Jordan, Kazakhstan, Serbia, **Slovenia**
February **Bosnia-Herzegovina**, **Georgia**, Iraq, **Italy**, **Slovakia**

Green: areas which never had reported outbreaks in poultry

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

AT A GLANCE

The latest HPAI outbreaks for the period 1 November 2011 – 29 February 2012

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

AFRICA

Egypt

A total of 38 H5N1 HPAI outbreaks occurred in 10 governorates in Nile Delta and Middle Nile areas during the period. Of which, 5 outbreaks were reported in commercial chicken farms and the birds were all vaccinated. No outbreak reported in southern half of Egypt or Sinai Peninsula.

Number of outbreaks per month per governorate

area	Governorate	Nov.	Dec.	Jan.	Feb.
Nile Delta	Dakahlia		3		1
	Damietta		1	2	1
	Gharbia		2	3	2
	Kafr el-Sheikh			2	
	Monufia		2	7	2
	Qalyubia		1		
Middle Nile	Beni Suef				2
	Faiyum				2
	Giza			1	1
	Minya	2		1	

ASIA

Bangladesh

A total of 14 H5N1 HPAI outbreaks reported during the period: November (Dhaka Division, 2 outbreaks), December (Khulna 3), January (Dhaka 3, Rahsahi 1), February (Chittagong 1, Dhaka 3, Rahsahi 1).

Bhutan

On 30 December 2011, H5N1 HPAI outbreaks occurred in backyard poultry in four villages near national highway in Bjabcho and Chukha Subdistricts (two villages each) of Chukha District. The disease was also found on 8 January in two villages in Chukha District, and on 13 January at the Changedaphu (Kalabazaar) labour camps in the Capital City Thimphu. Meanwhile, 15 crows found dead in Phuentsholing on 19 January; about three weeks later, outbreaks in backyard poultry occurred in the Subdistrict. Another outbreak occurred in Bongo Subdistrict on 17 February. So far, all outbreaks reported from backyard poultry farms near national highway in Chukha District. The Ministry of Agriculture and Forests (MoAF) has implemented the 3D operation (Depopulation, Disposal and Decontamination), vehicle disinfection, door-to-door mass awareness campaigns highlighting the various bio-security measures. The poultry sheds in and around the outbreaks have been decontaminated and many coops have been dismantled. The Ministry has agreed to pay the compensation for farmers based on 75% of the market rate.

Cambodia

In November, an outbreak of H5N1 HPAI was reported in a broiler farm in Opong Moan, Takream, Banan District, Battambang Province. This is the third outbreak report from the north-western Cambodia within four months.

China

On 2 December 2011, deaths of 290 birds with HPAI like clinical signs reported from farmers in Sangda Village, Liuwuxiang, Doilungdeqen County, Lhasa City, Xizang Province. Samples tested positive for H5N1 HPAI by the national reference laboratory for avian influenza, Harbin.

China (Hong Kong SAR)

Since 13 December 2011, a total of 12 wild birds found dead and tested positive for H5N1. These were: black-headed gull *Chroicocephalus ridibundus* (4), Oriental magpie robin *Copsychus saularis* (3), little egret *Egretta garzetta* (3), peregrine falcon *Falco peregrinus* (1), Grey Heron *Ardea cinerea* (1); also a goose carcass was found at the Anglers' Beach and tested positive for H5N1 HPAI. Following the detection of the H5N1 avian influenza virus in three dead birds collected in vicinity within 10 days, the outdoor section of the Hong Kong Wetland Park was temporarily closed for 21 days.

On 20 December 2011, a chicken carcass sampled in Cheung Sha Wan Temporary Wholesale Poultry Market as a part of regular monitoring tested positive for H5N1 virus. The authority conducted the poultry culling operation at the poultry market on 21 December 2011. A total of 19,451 poultry, including 15,569 chickens, 1,122 silky fowls, 1,950 pheasants and 810 pigeons were destroyed. After the operation, the poultry market was closed until 12 January 2012.

India

On 3 January 2012, H5N1 HPAI outbreak occurred in backyard poultry in Khordha District, Orissa State. On the same day, deaths of crows (*Corvus macrorhynchos*) were observed in Mayurbhanj District, Orissa State; three days later, an outbreak detected at the district in backyard poultry. Deaths of crows also occurred in Maharashtra and Bihar States in the same week, although there are approximately 750km and 400km distance from Mayurbhanj District, Orissa State. About a month later, an outbreak in backyard poultry was also reported in Khordha District again on 1 February 2012. There were also H5N1 HPAI outbreaks reported in East Garo Hills, MEGHALAYA and Lembucherra, West Tripura, TRIPURA States during January, these states are at the north to Bangladesh and the East to Bangladesh. India also reported the deaths of crows due to H5N1 infection occurred on 30 October 2011 in Jamsheerpur City, Jharkhand State. However there were no other outbreaks reported in Bangladesh, Bhutan, India or Nepal 40 days before/after this outbreak.

Indonesia

As of December 2011, the Participatory Disease Surveillance and Response (PDSR) programme through 33 Local Disease Control Centres covers 72,184 villages in 86 percent of Indonesia's 448 districts and municipalities in 29 of its 33 provinces. During each month, PDSR conducted surveillance in 1.5 percent of the villages.

	October 2011	November 2011	December 2011
Newly infected villages / 1000 villages	1.2	0.6	0.5
The highest HPAI incidence of the newly infected villages / 1000 villages	Bali (25.1)	Sulawesi Barat (7.8)	Sulawesi Barat (6.2)
	Nusa Tenggara Barat (20.6)	DI Yogyakarta (4.6)	Jambi (3.8)
	Gorontalo (4.5)	Sulawesi Selatan (3.4)	Kepulauan Bangka Belitung (2.6)

Myanmar

A H5N1 HPAI outbreak occurred on 20 February 2012 in Myothit Quarter, Chaung U Township, Monywa District, Sagaing Region. Out of 1 060 susceptible birds, 61 birds died and 999 have been culled.

Nepal

A total of eight H5N1 HPAI outbreaks reported during this period. In November 2011 there was an outbreak in Bhaktapur near Kathmandu; later, another outbreak reported in the Capital Kathmandu on 17 January 2012. In the eastern part of the country, an outbreak in Mechi Zone centre and two outbreaks in Sunsari District, Koshi Zone were reported during the latter half of January. And in February, six outbreaks occurred in Jhapa District, Mechi Zone and Sunsari District, Koshi Zone. Both Sunsari and Jhapa Districts have international border with India's Bihar State where deaths of crows on 10 January 2012 were reported.

Viet Nam

After the last vaccination campaign in early 2011, Viet Nam ceased vaccination in most of the country except for some provinces in the south. Since then, there were only sporadic H5N1 HPAI outbreaks and these were rapidly contained by stamping out. However, during February 2012, outbreaks reported one after another from 20 communes in 14 provinces. Most of the outbreaks occurred in the Red River Delta Region (Bac Ninh, Ha Nam, Hai Duong, Hai Phong, Nam Dinh Provinces), North Central Coast Region (Ha Tinh, Quang Tri, Thanh Hoa Provinces) and Notheastern Region (Bac Giang, Quang Ninh, Thai Nguyen Provinces). Other provinces reported outbreaks were: Kien Giang, Quang Nam, Soc Trang. Ducks or Moscovy ducks are involved in 60% of the outbreaks. So far, almost 30,000 birds have died or been destroyed in February 2012 alone, although the total number of outbreaks this season is still within the average of the last season. The Government have released 5 million doses of Re-5 vaccines (Hai Phong 0.5 million, Quang Tri 1 million, Soc Trang 2 million, Thai Nguyen 0.5 million, Thanh Hoa 1 million doses) to suppress the disease.

SUMMARY OF CONFIRMED HPAI OUTBREAKS (As of 29 February 2012)

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

Note: H5N1 unless otherwise indicated. Highlighted countries indicate those in which there has been only one officially confirmed H5N1 outbreak or occurrence. Dates of the last outbreak within this year are in bold.

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	20 February 2012	Domestic poultry – wild birds – donkeys	163 / 57
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
South Africa	1 February 2011	13 January 2012 (H5N2, PCR H5 positive)	Ostrich	-
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	19 February 2012	Domestic poultry	3 / 0
Bhutan	18 February 2010	13 January 2012	Domestic poultry	-
Cambodia	12 January 2004	3 November 2011	Domestic poultry – wild birds	19 / 17
China	20 January 2004	2 December 2011	Domestic poultry – wild birds	42 / 28
China (Hong Kong SAR)	19 January 2004	9 February 2012	Domestic poultry – Wild birds	
India	27 January 2006	1 February 2012	Domestic poultry – wild birds	-
Indonesia	2 February 2004	December 2011	Domestic poultry – pigs (with no clinical signs)	185 / 153
Japan	28 December 2003	16 March 2011	Domestic poultry – wild birds – raccoons (no clinical signs)	-
Kazakhstan	22 July 2005	10 March 2006	Domestic poultry – wild birds	-
Korea, Rep. of	10 December 2003	16 May 2011	Domestic poultry – wild birds	-
Lao PDR	15 January 2004	27 April 2010	Domestic poultry	2 / 2
Malaysia	7 August 2004	2 June 2007	Domestic poultry – wild birds	-
Mongolia	10 August 2005	5 April 2011	Wild birds	-
Myanmar	8 March 2006	20 February 2012	Domestic poultry	1 / 0
Nepal	8 January 2009	26 February 2012	Domestic poultry	-
Pakistan	23 February 2006	17 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	20 February 2012	Domestic poultry	121 / 61

NEAR EAST	First outbreak	Latest outbreak	Animals affected to date	Human cases / deaths to date
Iran	2 February 2006	17 October 2011	Domestic poultry - wild birds	-
Iraq	18 January 2006	1 February 2006	Domestic poultry – wild birds	3 / 2
Israel	16 March 2006	6 April 2011 (Jordan Valley)	Domestic poultry – Emu (zoo)	-
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	27 February 2011	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	29 March 2010	Wild birds	-
Croatia	21 October 2005	24 March 2006	Wild birds	-
Czech Republic	20 March 2006	11 July 2007	Wild birds – domestic poultry	-
Denmark	12 March 2006	22 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	10 January 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	22 December 2007	Wild birds – domestic poultry	-
Romania	7 October 2005	27 March 2010	Wild birds – domestic poultry – cat	-
Russian Federation	15 July 2005	5 June 2010 wild birds	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	9 October 2009 (H7)	Poultry	-
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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