

*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) – these sources are responsible for any errors or omissions.*

## Avian Influenza: continued support is required

Over the past ten years, there have been three major pandemic threats with major economic, health, political and social consequences: Severe Acute Respiratory Syndrome (SARS), Highly Pathogenic Avian Influenza H5N1 (H5N1 HPAI) and Influenza H1N1 (2009). Developing countries have been hit the hardest.

The factors making diseases to jump from animal hosts to humans comprise rising population growth, encroachment of fragile ecosystem, intensive farming operations and perhaps the effects of climatic changes on agro-ecological landscapes. Once this 'species jump' is a fact, propagation within human populations worldwide is likely. It is estimated that 75 per cent of new human diseases come from animals. High human densities, global transport of food items, cross-border trade, commerce and human mobility are likely to accelerate the transmission of new infectious diseases upon emergence.



Protecting countries and their citizens against new infectious diseases will require innovative health management with enhanced disease intelligence supported by a global network of diagnostic laboratories facilitating early warning, early detection and early response. A drivers-focused approach to disease emergence will have to grow in importance, the same as collaboration and coordination between animal, human and environmental health agencies; more collaboration between the public and private sectors; communication and awareness campaigns; and sustained commitments at the highest political levels.

While in the recent past there has been significant progress in terms of influenza control and pandemic preparedness, the world continues to face threats of avian and pandemic influenza and other infectious diseases. These threats call for continued support, vigilance and investments that are critical for global health security, people's livelihoods, social development and economic progress.

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To uphold global health security: the 'One Health' approach has been devised. It can be best defined as a collaborative, international, cross-sectoral, multidisciplinary mechanism to address threats and reduce risks of detrimental infectious diseases at the animal-human-ecosystem interface. It strategically builds on the lessons learned from the responses to H5N1 HPAI and H1N1 epizootics. This approach is thought to be of high value to governments, private and public companies, civil society organizations and the public at large to prepare for future global outbreaks of infectious diseases.

In addition to H5N1 HPAI and H1N1, other emerging or neglected infectious diseases such as rabies, human tuberculosis and brucellosis, result in significant human and economic losses in predominantly poor communities around the world. International technical agencies collectively support national and global preparedness, as part of global responses to these insidious diseases. The Food and Agriculture Organization of the United Nations (FAO) is a lead actor in mounting animal health responses against classical and contemporary diseases in places where it is most needed, and where health and food security pose a twin challenge.

## Satellite telemetry supports determination of HPAI dispersal ranges and rates

The Highly Pathogenic Avian Influenza H5N1 (H5N1 HPAI) epidemic that swept through Southeast Asia in 2004 has spread across Eurasia and into Africa. The specific details of transmission dynamics are still not well understood. In recent years, however, wildfowl have been suspected of contributing to the broad and rapid geographic spread of H5N1 HPAI. This suspicion arises because migratory birds, in their intercontinental flyways, can effectively carry and disperse zoonotic pathogens for long distances. Furthermore, experimental infection studies reveal that some geese, swans and wild ducks shed H5N1 HPAI asymptomatically and this makes them ideal candidates to spread the disease as they move from place to place.

To gain a better understanding of wildfowl-specific transmission dynamics, a team of researchers from the Food and Agriculture Organization of the United Nations (FAO), CIRAD, the U.S. Geological Survey, and Wetlands International evaluated the dispersive potential of H5N1 HPAI through an analysis of the movement range and movement rate of birds monitored by satellite telemetry. The team analysed the movements of 228 birds from 19 species flying over disease affected regions of Asia, Europe and Africa that were monitored by satellite telemetry from 2006 to 2009; part of FAO's [Global HPAI Disease and Migration Ecology Programme](#) that has fitted with transmitters, more than 500 birds to date. The results from this analysis confirms that individual migratory wildfowl have the potential to disperse H5N1 HPAI over large distances, thus being able to perform movements of up to 2,900 kilometres within timeframes compatible with the duration of asymptomatic infections.



But closer examination of the data reveals that, for any given individual migratory bird, there are an estimated 5 to 15 days annually when infection could result in the effective dispersal of H5N1 HPAI over 500 kilometres. In view of this, therefore, long-distance virus dispersal by individual wildfowl is unlikely. Additionally, the study suggests that intercontinental virus dispersion would probably require relay transmission amongst a series of migratory birds that have been successively infected. This requirement lowers the likelihood of virus dispersal.

One of the most significant applications of this quantitative assessment of the dispersive potential of H5N1 HPAI by selected migratory birds is that it challenges the assumption that free-living wildfowl will respond similarly to captive, experimentally-infected birds. It also questions the rationale that asymptomatic infection will not alter their ability to move freely.



More about this study and other details in relation to this topic can be found in "*Potential spread of highly pathogenic avian influenza H5N1 by wildfowl: dispersal ranges and rates determined from large-scale satellite telemetry*" published at the Journal of Applied Ecology, summer 2010.

The [Wildlife Unit](#) of the Emergency Prevention Systems for Transboundary Animal and Plant Pests and Diseases ([EMPRES](#)) at FAO contributed to this and many other scientific studies evaluating whether waterfowl habitat use or migration are spatially or temporally related to H5N1 HPAI outbreaks . FAO supports these studies in order to design, test and provide analytical frameworks for quantifying the risks of disease spread among livestock, wildlife and people, and in this case, specifically avian-borne diseases. Overall, FAO is working to address high-impact transboundary diseases that are emerging and re-emerging around the world.

## MOST RECENT H5N1 AI OUTBREAKS 2006-2010

Note: This list has been compiled on the basis of information up to 30 September 2010.

### 2010

September	Egypt
August	Indonesia
July	Viet Nam
June	Bangladesh, Russian Federation
May	China, Israel, <b>Mongolia</b>
April	Cambodia, Lao PDR
March	Bhutan, <b>Bulgaria</b> , China (Hong Kong), Myanmar, Nepal, Romania
January	India

### 2009

March	Germany
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### 2008

November	Thailand
September	Togo
July	Nigeria
June	Pakistan
May	Japan, Korea (Republic of), United Kingdom
March	Turkey
February	<b>Switzerland</b> , Ukraine
January	Saudi Arabia

### 2007

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

### 2006

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

*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 – 30 September 2010*

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

## AFRICA

### EGYPT

A total of 18 H5 HPAI positive cases were reported in five governorates during 1 - 30 September: Beni Suef (2), Fayoum (6) Giza (1), Menoufia (6), Qualioubia (3) Governorates (The number of outbreaks in the governorate is in brackets). All of the outbreaks were in household poultry, except for one commercial farm in the Qualioubia Governorate that had been vaccinated.

## ASIA

### INDONESIA

The Participatory Disease Surveillance & Response (PDSR) programme through 33 Local Disease Control Centres covers 71,192 villages in 84% of Indonesia's 448 districts and municipalities in 29 of its 33 provinces. During July 2010, PDSR conducted surveillance in 1,868 villages (2.6%). The overall HPAI incidence was 0.5 infected villages per 1000 villages under surveillance. The province with the highest incidence values was Bengkulu (4.7 per 1000 villages). The number of newly infected villages found during June by island was: 17 in Sumatra, 17 in Java, 2 in Kalimantan and 3 in Sulawesi. During August 2010, PDSR conducted surveillance in 1,488 villages (2.1%). The overall HPAI incidence was 0.6 infected villages per 1000 villages under surveillance. The province with the highest incidence values was Bengkulu (12.6 per 1000 villages). The number of newly infected villages found during June by island was: 23 in Sumatra, 15 in Java, 5 in Kalimantan and 1 in Sulawesi.

## SUMMARY OF CONFIRMED HPAI OUTBREAKS (As of 30 September 2010)

**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.

<b>AFRICA</b>	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	<b>29 September 2010</b> Beni Suef	Domestic poultry – wild birds – donkeys*	<b>112 / 36</b>
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	-

  

<b>ASIA</b>	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	<b>19 June 2010</b>	Domestic poultry	1 / 0
Bhutan	<b>18 February 2010</b>	<b>14 March 2010</b>	Domestic poultry	-
Cambodia	12 January 2004	<b>22 April 2010</b>	Domestic poultry – wild birds	<b>10 / 8</b>
China	20 January 2004	<b>9 May 2010</b> wild birds	Domestic poultry – wild birds	<b>39 / 26</b>
China (Hong Kong SAR)	19 January 2004	<b>26 March 2010</b>	Wild birds	-
India	27 January 2006	<b>30 January 2010</b>	Domestic poultry	-
Indonesia	2 February 2004	<b>September 2010</b>	Domestic poultry – pigs (with no clinical signs)	<b>168 / 139</b>
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	<b>27 April 2010</b>	Domestic poultry	2 / 2
Malaysia	7 August 2004	2 June 2007	Domestic poultry – wild birds	-
Mongolia	10 August 2005	<b>3 May 2010</b>	Wild birds	-
Myanmar	8 March 2006	<b>1 March 2010</b>	Domestic poultry	1 / 0
Nepal	8 January 2009	<b>8 March 2010</b>	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	<b>18 July 2010</b>	Domestic poultry	<b>119 / 59</b>

  

<b>NEAR EAST</b>	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	<b>3 / 2</b>
Israel	16 March 2006	<b>2 May 2010</b>	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	2 April 2006	Domestic poultry	-

\* Journal of Biomedical Science : <http://www.jbiomedsci.com/content/17/1/25>

<b>EUROPE</b>	<b>First outbreak</b>	<b>Latest outbreak</b>	<b>Animals affected to date</b>	<b>Human cases / deaths to date</b>
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	<b>8 / 5</b>
Bosnia-Herzegovina	16 February 2006	16 February 2006	Wild birds	-
Bulgaria	31 January 2006	<b>29 March 2010</b>	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	<b>27 March 2010</b>	Wild birds – domestic poultry – cat	-
Russian Federation	15 July 2005	<b>5 June 2010</b> 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	<b>12 / 4</b>
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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