



MI FluFocus

Influenza Surveillance and Avian Influenza Update

Bureau of Epidemiology
Bureau of Laboratories

Michigan Department of Community Health



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New updates in this issue:

- **Michigan Surveillance:** MDCH upgrades to “regional” influenza activity based on increasing activity in multiple surveillance systems.
- **National Surveillance:** During week 4, 26 states reported regional or widespread influenza activity.
- **Avian Influenza:** New human cases of H5N1 avian influenza are reported by Egypt and Vietnam.

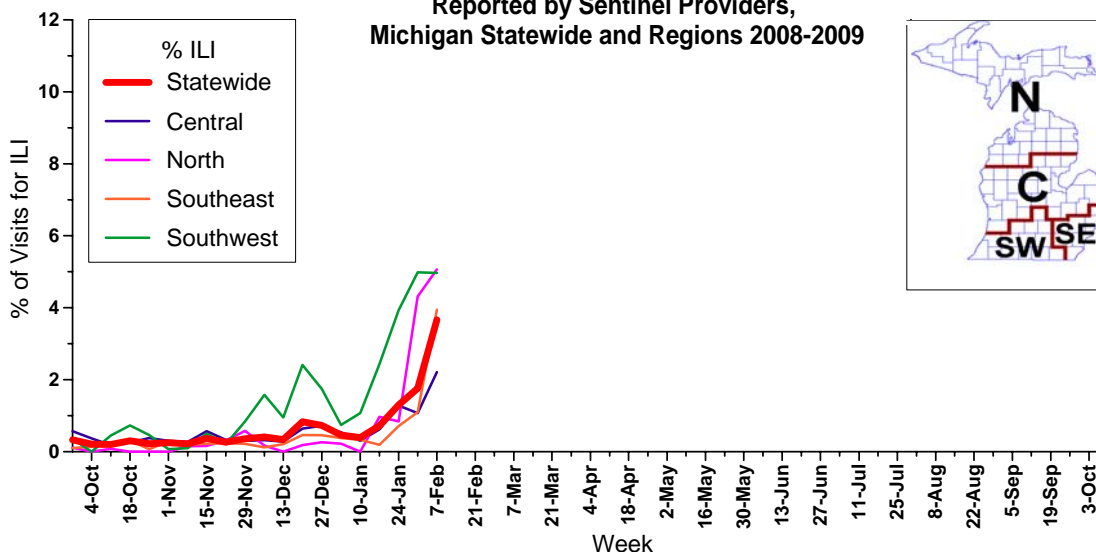
Michigan Disease Surveillance System: The week ending February 7 saw both individual influenza disease reports and aggregate flu-like numbers continue to increase compared to the previous week. Both numbers are notably lower than levels seen at this time last year.

Emergency Department Surveillance: Emergency department visits from both constitutional and respiratory complaints increased during the previous week. Both of these numbers are lower than those seen this time last year. Thirteen constitutional alerts in the C(6), N(4) and SW(2) Influenza Surveillance Regions along with one statewide alert and four respiratory alerts in the C(1), SE(1) and SW(2) Influenza Surveillance Regions were generated last week.

Over-the-Counter Product Surveillance: Overall, OTC product sales were mixed last week. Sales of thermometer were up slightly, children’s electrolytes were down slightly, and the remaining indicators held steady near last week’s levels. Indicator levels are comparable to those seen at this time last year.

Sentinel Provider Surveillance (as of February 12): During the week ending February 7, 2009, the proportion of visits due to influenza-like illness (ILI) increased to 3.7% overall; 246 patient visits due to ILI were reported out of 6,751 office visits. The level of ILI activity has continued to steadily increase. For the first week this season, the proportion of visits due to ILI was higher than reported at this time during the prior years’ surveillance; however, influenza activity had already peaked (5.4% for the week ending February 2nd, 2008) and was in the process of declining. Activity increased in three surveillance regions: Central (2.2%), North (5.1%), Southeast (3.9%) and remained the same in the Southwest (5.0%) region. The largest increase was seen in the Southeast region, which increased from 1.1% to 3.9%. Urgent Care centers, Pediatrician offices and Student Health centers submitted the majority of the reports. 26 sentinels provided data for this report. Note that these rates may change as additional reports are received.

Percentage of Visits for Influenza-like Illness (ILI)
Reported by Sentinel Providers,
Michigan Statewide and Regions 2008-2009



As part of pandemic influenza preparedness, CDC and MDCH highly encourage year-round participation from all sentinel providers. New practices are encouraged to join the sentinel surveillance program today! Contact Rachel Potter at 517-335-9710 or potterr1@michigan.gov for more information.

Laboratory Surveillance (as of February 12): During the past week, 26 new influenza A isolates and 13 new influenza B isolates were identified at the MDCH Bureau of Laboratories (BOL). For the 2008-2009 influenza season, MDCH BOL has identified 110 influenza isolates (followed by Influenza Surveillance Regions of origin):

- 74 A/H1N1 (27SE, 23SW, 17C, 7N)
- 2 A/H3N2 (1SE, 1C)
- 7 A subtype pending (1SE, 3SW, 1C, 2N)
- 27 B (7SE, 11SW, 2C, 7N). 1 isolate is B/Florida/4/2006-like (SE); 2 are B/Malaysia/2506/2004-like (2SW); 24 are pending characterization (6SE, 9SW, 2C, 7N).

During the week ending February 7, increases in influenza A positives were reported by 8 labs in the SE, SW and C Surveillance Regions, while 3 labs in the SE and SW Regions saw increases in influenza B activity. 4 labs (C, N) are reporting sporadic influenza A positives and 7 labs (SE, SW, C, N) are seeing sporadic influenza B's. All sentinel laboratories across the state have reported positive influenza results during this season. RSV positives increased in 6 labs (SE, SW).

***As a reminder, the positive predictive value of influenza rapid tests decreases during times of low influenza prevalence. MDCH suggests that during periods of low influenza activity in your community, all positive rapid tests results be confirmed by sending in a specimen for viral culture; this can be arranged through your local health department.

Michigan Antigenic Characterization (as of February 12): At this time, four influenza A/H1N1 isolates have been antigenically characterized by the CDC; results indicate all isolates are A/Brisbane/59/2007-like, which matches the influenza A/H1N1 component of this season's Northern Hemisphere vaccine. One influenza A/H3N2 has been characterized as A/Brisbane/10/2007-like, which matches the A/H3N2 component of this season's vaccine. The one influenza B isolate has been characterized as B/Florida/4/2006-like, which matches the influenza B component of this season's vaccine.

Michigan Antiviral Resistance Data (as of February 12): Four influenza A/H1N1 viruses from the MDCH Bureau of Laboratories have been tested for antiviral resistance at CDC for the 2008-2009 season. All four viruses were resistant to oseltamivir (Tamiflu®) and sensitive to zanamivir, amantadine and rimantadine. These viruses were collected in the SE(3) and SW(1) Influenza Surveillance Regions. One influenza A/H3N2, collected in the Central Surveillance Region, has been tested for antiviral resistance; that virus was resistant to the adamantanes (amantadine and rimantadine) and sensitive to oseltamivir and zanamivir.

Antiviral resistance testing often takes several weeks to complete, and thus cannot be used to guide treatment of individual patients. However, CDC has made interim recommendations regarding the use of antiviral medications for the treatment of influenza and for prophylaxis. This guidance is available at <http://www2a.cdc.gov/HAN/ArchiveSys/ViewMsgV.asp?AlertNum=00279>.

Influenza-Associated Pediatric Mortality (as of February 12): No influenza-associated pediatric mortalities have been reported to MDCH for the 2008-2009 influenza season.

***The CDC has asked all states to collect information on any pediatric death associated with influenza infection. This includes not only any death in a child (<18 years) resulting from a compatible illness confirmed to be influenza by an appropriate diagnostic test, but also any unexplained death with evidence of an infectious process in a child. Please immediately call MDCH to ensure that proper clinical specimens are obtained. View the complete MDCH protocol online at http://www.michigan.gov/documents/mdch/ME_pediatric_influenza_guidance_v2_214270_7.pdf.

Congregate Settings Outbreaks (as of February 12): Two congregated setting outbreaks (1C, 1N) due to influenza (1 influenza A, 1 influenza B) have been reported to MDCH for the 2008-2009 influenza season.

National (CDC [edited], February 6): During week 4 (January 25-31, 2009), influenza activity continued to increase in the United States. Seven hundred ninety-two (16.2%) specimens tested by U.S. World Health Organization (WHO) and National Respiratory and Enteric Virus Surveillance System

(NREVSS) collaborating laboratories and reported to CDC/Influenza Division were positive for influenza. The proportion of deaths attributed to pneumonia and influenza (P&I) was below the epidemic threshold. One influenza-associated pediatric death was reported. The proportion of outpatient visits for influenza-like illness (ILI) was below the national baseline. ILI increased in eight of the nine regions compared to week 3, and the East North Central, East South Central, New England, and West South Central regions reported ILI at or above their region-specific baselines. Five states reported widespread influenza activity, 21 states reported regional activity; the District of Columbia and 13 states reported local influenza activity; and Puerto Rico and 11 states reported sporadic influenza activity.

CDC has antigenically characterized 255 influenza viruses [142 influenza A (H1), 35 influenza A (H3) and 78 influenza B viruses] collected by U.S. laboratories since October 1, 2008.

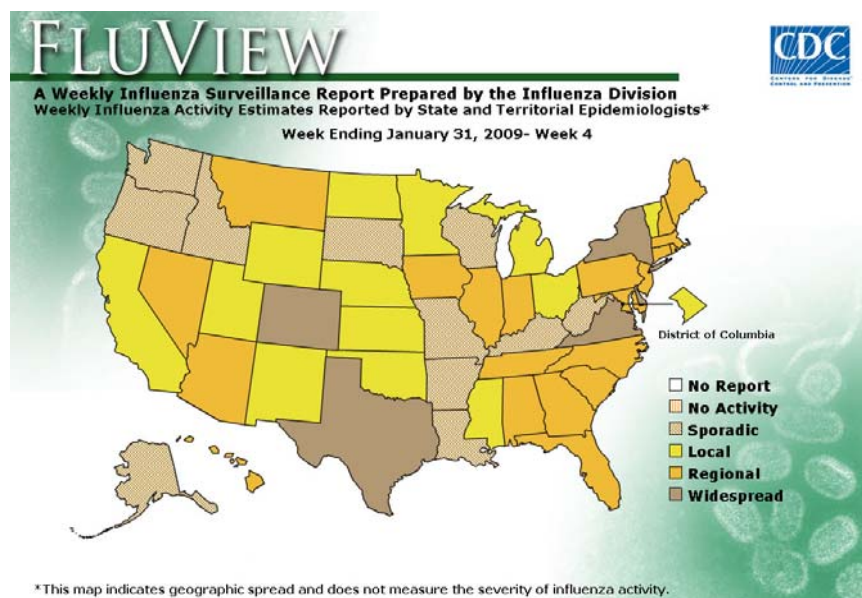
All 142 influenza A (H1) viruses are related to the influenza A (H1N1) component of the 2008-09 influenza vaccine (A/Brisbane/59/2007). All 35 influenza A (H3N2) viruses are related to the A (H3N2) vaccine component (A/Brisbane/10/2007).

Influenza B viruses currently circulating can be divided into two distinct lineages represented by the B/Yamagata/16/88 and B/Victoria/02/87 viruses. Twenty-three influenza B viruses tested belong to the B/Yamagata lineage and are related to the vaccine strain (B/Florida/04/2006). The remaining 55 viruses belong to the B/Victoria lineage and are not related to the vaccine strain.

Since October 1, 2008, 190 influenza A (H1N1), 41 influenza A (H3N2), and 77 influenza B viruses have been tested for resistance to the neuraminidase inhibitors (oseltamivir and zanamivir). One hundred ninety influenza A (H1N1) and 41 influenza A (H3N2) viruses have been tested for resistance to the adamantanes (amantadine and rimantadine). The results of antiviral resistance testing performed on these viruses are summarized in the table below.

	Isolates tested (n)	Resistant Viruses, Number (%)		Isolates tested (n)	Resistant Viruses, Number (%)
		Oseltamivir	Zanamivir		
Influenza A (H1N1)	190	185 (97.4%)	0 (0)	190	2 (1.1%)
Influenza A (H3N2)	41	0 (0)	0 (0)	41	41 (100%)
Influenza B	77	0 (0)	0 (0)	N/A*	N/A*

*The adamantanes (amantadine and rimantadine) are not effective against influenza B viruses.



To access the entire CDC weekly surveillance report throughout the influenza season, visit <http://www.cdc.gov/flu/weekly/fluactivity.htm>

International (WHO [edited], February 6): During the weeks 3-4, the level of overall influenza activity in the world continued to intensify. Influenza activity continued to spread across Europe with most countries reporting regional or widespread activity. Influenza A (H3) viruses continue to predominate. Widespread influenza A activity (H1 and H3) was reported in Japan. In Canada, Hong Kong Special Administrative Region of China and the United States of America influenza activity increased but remained relatively low.

Sporadic influenza activity was observed in Brazil (A), Croatia (H1,H3,B), Greece (H1, H3, B), Iran (H1, H3), Mongolia (A), Portugal (H1, H3, B), Serbia (H1, H3, B), Singapore (H1, H3, B), Slovakia (H3) and Turkey (H3, B).

Argentina and Cameroon reported no activity.

To access the entire report, visit <http://www.who.int/csr/disease/influenza/update/en/>

MDCH reported **REGIONAL INFLUENZA ACTIVITY** to the CDC for the week ending February 7, 2009.

For stakeholders interested in additional information regarding influenza vaccination and education, the MDCH publication *Michigan FluBytes* is available online at http://www.michigan.gov/mdch/0,1607,7-132-2940_2955_22779_40563-125027--,00.html. *FluBytes* is published weekly during the influenza season.

End of Seasonal Report

Avian Influenza Activity

WHO Pandemic Phase: Phase 3 - Human infection(s) with a new subtype, but no human-to-human spread or rare instances of spread to a close contact.

International, Human (WHO, February 9): The Ministry of Health and Population of Egypt has announced a new human case of avian influenza A(H5N1) virus infection. The case is a one and a half year old male from the Maghagha District of Menia Governorate. His symptoms began on 6 February and he was hospitalized at the Maghagha Fever Hospital on 7 February where he remains in a stable condition. Infection with the H5N1 avian influenza virus was confirmed by the Egyptian Central Public Health Laboratory.

Investigations into the source of his infection indicate a history of close contact with dead poultry prior to becoming ill.

Of the 55 cases confirmed to date in Egypt, 23 have been fatal.

International, Human (WHO, February 11): The Ministry of Health in Viet Nam has reported a new confirmed case of human infection with the H5N1 avian influenza virus. The case has been confirmed at the National Institute of Hygiene and Epidemiology (NIHE).

The case is a 23-year old woman from Dam Ha district, Quang Ninh province. She developed symptoms on 28 January 2009 and was hospitalized on 31 January 2009. She is currently in a serious condition and is known to have had recent contact with sick and dead poultry prior to the onset of her illness. Further investigations are currently underway. Control measures have been implemented and close contacts are being identified and monitored.

Of the 108 cases confirmed to date in Viet Nam, 52 have been fatal.

International, Poultry (The Associated Press, February 11): China has slaughtered more than 13,000 birds after an outbreak of the deadly H5N1 bird flu virus was confirmed in the far west, state media said. The outbreak is the first reported among birds this year despite the deaths of five people from the virus.

Eight people have contracted bird flu this year in China but no sick poultry have been found in the areas where the patients fell ill, despite inspections of hundreds of thousands of birds. The World Health Organization has said the lack of cases raises questions about the quality of China's surveillance system.

China's Ministry of Agriculture said 519 fowl died and were confirmed as having the H5N1 strain of bird

flu, the official Xinhua News Agency reported late Tuesday.

The fowl died in Hetian prefecture, also known as Hotan, in Xinjiang, China's far western region that borders Pakistan and Afghanistan.

The ministry and the regional government in Xinjiang have taken emergency measures, Xinhua said, killing 13,218 fowl. The epidemic has been brought under control, it said.

While outbreaks in bird and people pop up regularly, there is usually a spike in cases during the colder months because the virus survives longer and the chance of infection increases.

The last reported outbreak in fowl was in mid-December, when authorities in eastern China killed more than 300,000 fowl after bird flu was discovered in chickens in Jiangsu province.

One of the five fatal human cases this year was a 31-year-old woman from Urumqi, the capital of the Xinjiang region, who fell ill on Jan. 10 and died nearly two weeks later. Hetian is 570 miles (920 kilometers) south of Urumqi.

The H5N1 strain has killed at least 254 people worldwide since 2003, most through contact with sick birds. Scientists are monitoring the virus because of its potential to mutate into a new human influenza virus, which could infect millions.

But scientists have found little mutation in the virus strains taken from those patients and no mutation that would allow human to human transmission, Mao Qun'an, spokesman of the Ministry of Health, said Tuesday, according to Xinhua.

International, Poultry (Canadian Food Inspection Agency, February 11): The Canadian Food Inspection Agency (CFIA) has confirmed the presence of H5 avian influenza virus in a second commercial poultry operation in southern British Columbia.

People are rarely affected by avian influenza, except in a limited number of cases when individuals were in close contact with infected birds. Nevertheless, public health authorities are taking precautionary measures as warranted.

The flock was tested as part of the surveillance activities within three kilometres of the commercial poultry operation where low pathogenic H5N2 avian influenza was detected on January 24.

Tests to date indicate that the strain of avian influenza on the new premises is also low pathogenic and similar to the original strain identified on the index premises. Further testing is underway to confirm precise subtype and strain of the virus. Pathogenicity refers to the severity of the illness caused in birds.>

All birds on the new infected premises will be humanely euthanized and disposed of in accordance with provincial environmental regulations and internationally accepted disease control guidelines. Once all birds have been removed, the CFIA will oversee the cleaning and disinfection of the barns, vehicles, equipment and tools to eliminate any infectious material that may remain.

In order to limit any potential virus spread, the CFIA is applying movement restrictions on commercial operations within three kilometres of the new infected premises. This new three-kilometre radius around the new infected premises overlaps the three-kilometre radius around the index premises. The CFIA is placing quarantines on an additional 10 premises as a result.

Three farms outside the three-kilometre radius around the first infected premises recently completed a 21-day monitoring period and met the requirements for quarantine release. Thirty-three (33) farms remain under quarantine as a result of the first detection.

Animal health and public health authorities from the Province of British Columbia, local poultry specialists and industry are actively collaborating in this response effort. Everyone involved shares a commitment to work together to contain and eliminate all infected poultry as quickly as possible.

In keeping with international agreements, the CFIA is reporting this new finding to the World Organisation for Animal Health (OIE) and international trading partners.

New information will continue to be reported on the CFIA website as it becomes available.

Michigan Wild Bird Surveillance (USDA, as of February 12): For the 2008 testing season, 2105 Michigan samples have been taken so far, comprised of 327 live birds, 1218 hunter-killed birds, 35 morbidity or mortality samples and 525 environmental samples.

HPAI subtype H5N1 has not been recovered from any Michigan samples tested to date, or from the 77,060 birds or environmental samples tested nationwide for the 2008 testing season, which will run from April 1, 2008 - March 31, 2009. For more information, visit the National HPAI Early Detection Data System website at <http://wildlifedisease.nbio.gov/ai/>.

To learn about avian influenza surveillance in Michigan wild birds or to report dead waterfowl, go to Michigan's Emerging Disease website at <http://www.michigan.gov/emergingdiseases>.

Please contact Susan Vagasky at VagaskyS@Michigan.gov with any questions regarding this newsletter or to be added to the weekly electronic mailing list.

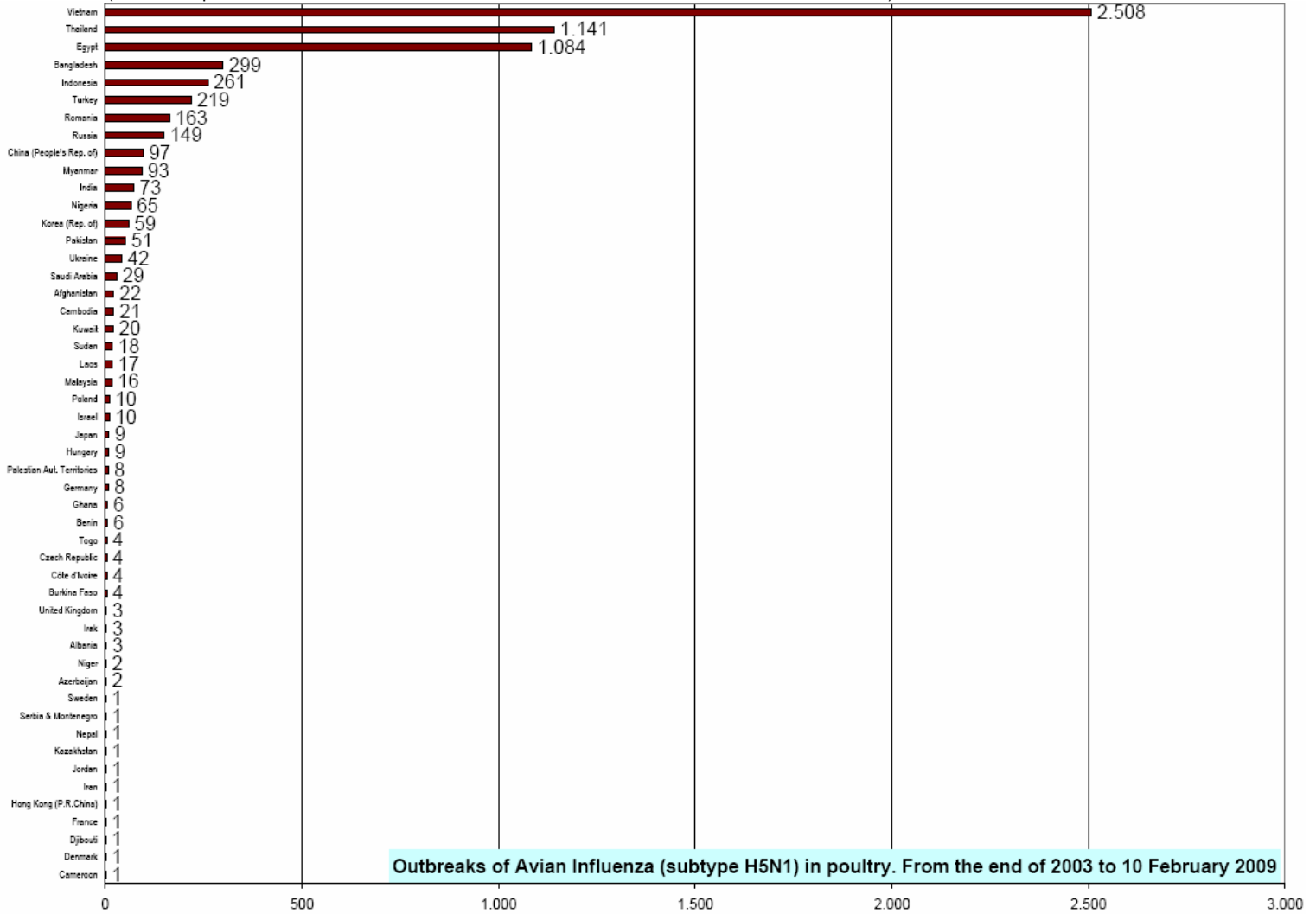
Contributors

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Table 1. H5N1 Influenza in Poultry (Outbreaks up to February 10, 2008)

(Source: http://www.oie.int/downld/AVIAN%20INFLUENZA/A_AI-Asia.htm Downloaded 2/11/08)



Outbreaks of Avian Influenza (subtype H5N1) in poultry. From the end of 2003 to 10 February 2009

Table 2. H5N1 Influenza in Humans (Cases up to February 11, 2008)

(http://www.who.int/csr/disease/avian_influenza/country/cases_table_2009_02_11/en/index.html Downloaded 2/11/2009)

Cumulative number of lab-confirmed human cases reported to WHO. Total number of cases includes deaths.

Country	2003		2004		2005		2006		2007		2008		2009		Total	
	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths
Azerbaijan	0	0	0	0	0	0	8	5	0	0	0	0	0	0	8	5
Bangladesh	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
Cambodia	0	0	0	0	4	4	2	2	1	1	1	0	0	0	8	7
China	1	1	0	0	8	5	13	8	5	3	4	4	7	4	38	25
Djibouti	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
Egypt	0	0	0	0	0	0	18	10	25	9	8	4	4	0	55	23
Indonesia	0	0	0	0	20	13	55	45	42	37	24	20	0	0	141	115
Iraq	0	0	0	0	0	0	3	2	0	0	0	0	0	0	3	2
Lao People's Democratic Republic	0	0	0	0	0	0	0	0	2	2	0	0	0	0	2	2
Myanmar	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0
Nigeria	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1
Pakistan	0	0	0	0	0	0	0	0	3	1	0	0	0	0	3	1
Thailand	0	0	17	12	5	2	3	3	0	0	0	0	0	0	25	17
Turkey	0	0	0	0	0	0	12	4	0	0	0	0	0	0	12	4
Viet Nam	3	3	29	20	61	19	0	0	8	5	6	5	1	0	108	52
Total	4	4	46	32	98	43	115	79	88	59	44	33	12	4	407	254