



# 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:** Updated laboratory and antigenic characterization data available.
- **National Surveillance:** Influenza activity increases; 3 states report regional activity.
- **Avian Influenza:** China and Vietnam each report a human H5N1 avian influenza case.

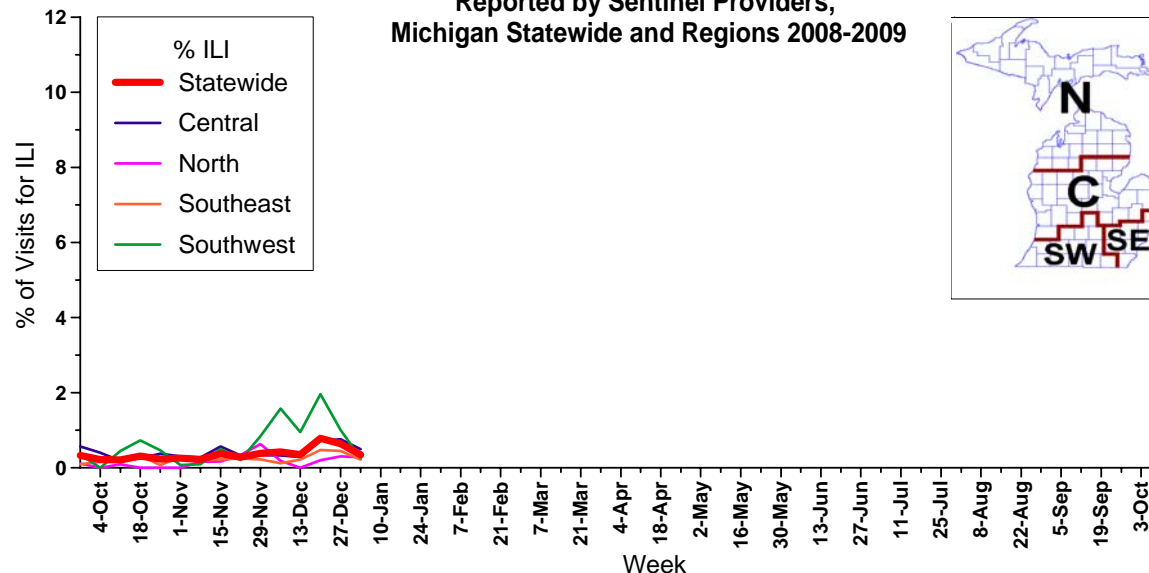
**Michigan Disease Surveillance System:** The week ending January 3 saw individual influenza disease reports increase slightly, while aggregate flu-like numbers decrease slightly compared to what was seen last week. The decrease in aggregate numbers is most likely attributable to the holiday school breaks. Both numbers are consistent with levels seen at this time last year.

**Emergency Department Surveillance:** Emergency department visits from both constitutional and respiratory complaints increased slightly. These numbers are slightly lower than those seen this time last year. Eight constitutional alerts in the C(4), N(2) and SE(2) Influenza Surveillance Regions and three respiratory alerts in the C(1) and N(2) Influenza Surveillance Regions were generated last week.

**Over-the-Counter Product Surveillance:** Overall, OTC product sales were steady last week. The only change seen was a slight increase in chest rub sales. Sales of children's electrolytes and chest rubs have seen an upward trend over the last several weeks. Indicator levels are comparable to those seen at this time last year.

**Sentinel Provider Surveillance (as of January 8):** During the week ending January 3, 2009, the proportion of visits due to influenza-like illness (ILI) remained at a low level, 0.3% overall; 22 patient visits due to ILI were reported out of 6,329 office visits. This level of ILI activity is slightly below that reported at this time during prior years' surveillance. Activity remains low in three of the four surveillance regions: Central (0.5%), North (0.3%), Southeast (0.2%), and Southwest (0.3%). Thirty-five 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](mailto:potterr1@michigan.gov) for more information.

**Laboratory Surveillance (as of January 8):** During the past week, 5 new influenza A isolates and 1 influenza B isolate have been identified at the MDCH Bureau of Laboratories (BOL). For the 2008-2009 influenza season, MDCH BOL has identified 18 influenza isolates (followed by Influenza Surveillance Regions of origin):

- 14 A/H1N1 (8 SE, 6 SW)
- 1 A/H3N2 (C)
- 1 A subtype pending (SE)
- 2 B (1 SE, 1 SW). 1 isolate is B/Florida/4/2006-like (SE); 1 is pending characterization (SW).

During the past week, moderately increasing levels of influenza A were reported by two sentinel labs in the SE and SW Influenza Surveillance Region. Influenza B positive results are low but increasing in the SE and SW Regions. Sentinel labs from the N Region continue to report no influenza positives for the season. Steadily increasing levels of positive RSV tests are being reported from the SE Region.

\*\*\*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 January 8):** At this time, three 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. The one influenza B isolate has been characterized as B/Florida/4/2006-like, which matches the influenza B component of this season's Northern Hemisphere influenza vaccine.

**Michigan Antiviral Resistance Data (as of January 8):** Three influenza A/H1N1 viruses from the MDCH Bureau of Laboratories have been tested for antiviral resistance at CDC for the 2008-2009 season. All three viruses were resistant to oseltamivir (Tamiflu®) and sensitive to zanamivir, amantadine and rimantadine. These viruses were collected in the SE(2) and SW(1) Influenza Surveillance Regions.

It is difficult to draw any conclusions about antiviral resistance in Michigan influenza viruses at this time, as influenza activity has been low and there have been few positive specimens on which to perform additional testing. 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 January 8):** No influenza-associated pediatric mortalities have been reported to MDCH for the 2008-2009 influenza season.

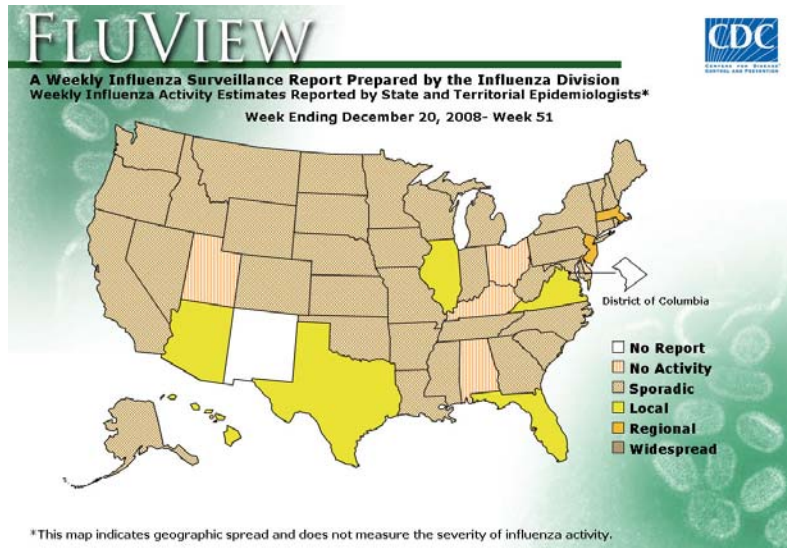
\*\*\*The CDC has asked all states to collect information on any pediatric death associated with influenza infection. This includes not only any death in a child (<18 years) resulting from a compatible illness confirmed to be influenza by an appropriate diagnostic test, but also any unexplained death 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](http://www.michigan.gov/documents/mdch/ME_pediatric_influenza_guidance_v2_214270_7.pdf).

**Congregate Settings Outbreaks (as of January 8):** No outbreaks were reported to MDCH in the past week. One congregated setting outbreak due to influenza A has been reported to MDCH for the 2008-2009 influenza season; confirmatory testing for the one case associated with this outbreak was negative at MDCH BOL [Ed. note: the patient received oseltamivir before the specimen was collected].

**National (CDC [edited], December 30):** During week 51 (December 14-20, 2008), a low level of influenza activity was reported in the United States. One hundred three (3.4%) 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. The proportion of outpatient visits for influenza-like illness (ILI) was below national

and region-specific baseline levels. Two states reported regional activity; six states reported local influenza activity; Puerto Rico and 36 states reported sporadic influenza activity; five states reported no influenza activity; and the District of Columbia and one state did not report.

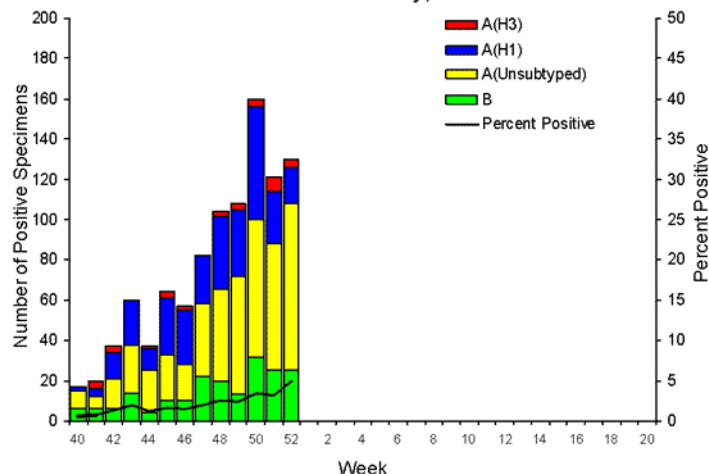
To access the entire CDC weekly surveillance report throughout the influenza season, visit <http://www.cdc.gov/flu/weekly/fluactivity.htm>

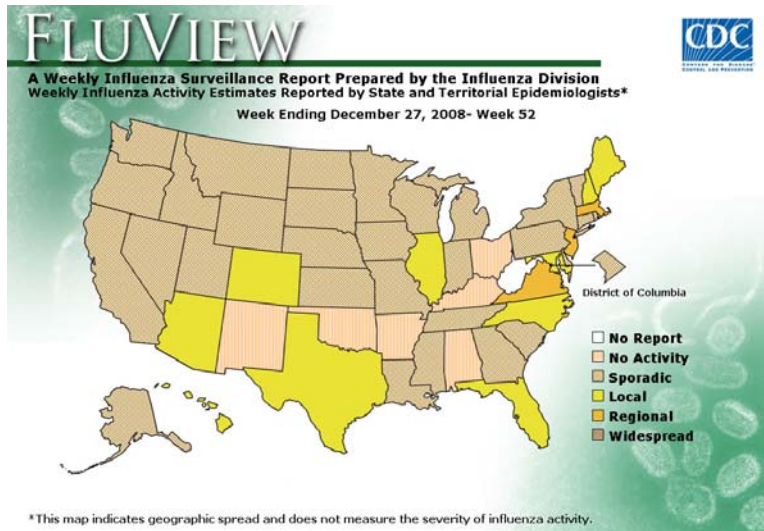


**National (CDC [edited], January 5):** During week 52 (December 21-27, 2008), increased influenza activity was reported in the United States. One hundred thirty (5.0%) specimens tested by U.S. World Health Organization (WHO) and National Respiratory and Enteric Virus Surveillance System (NREVSS) collaborating 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 pediatric influenza-associated death was reported. The proportion of outpatient visits for influenza-like illness (ILI) was below the national baseline. The South Atlantic region reported ILI at their region-specific baseline. Three states reported regional activity; 10 states reported local influenza activity; the District of Columbia and 30 states reported sporadic influenza activity; six states reported no influenza activity; and one state did not report.

CDC has antigenically characterized 104 influenza viruses [68 influenza A (H1N1), seven influenza A (H3N2) and 29 influenza B viruses] collected by U.S. laboratories since October 1, 2008. All 68 influenza A (H1N1) viruses are related to the influenza A (H1N1) component of the 2008-09 influenza vaccine (A/Brisbane/59/2007). All seven influenza A (H3N2) viruses are related to the influenza 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. Nine influenza B viruses tested belong to the B/Yamagata lineage and are related to the influenza B vaccine component (B/Florida/04/2006). The remaining 20 viruses belong to the B/Victoria lineage and are not related to the influenza B vaccine strain. Seventeen of the 20 viruses belonging to the B/Victoria lineage were submitted from two states.

Influenza Positive Tests Reported to CDC by U.S. WHO/NREVSS Collaborating Laboratories, National Summary, 2008-09





Since October 1, 2008, 73 influenza A (H1N1), 11 influenza A (H3N2), and 33 influenza B viruses from 21 states have been tested for resistance to the neuraminidase inhibitors (oseltamivir and zanamivir). More than half (58%) of these tested viruses tested were from only three states. Seventy-three influenza A (H1N1) and 11 influenza A (H3N2) viruses from 18 states have been tested for resistance to the adamantanes (amantadine and rimantadine). More than half (56%) of these tested viruses tested were from only three states as well. 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		
<b>Influenza A (H1N1)</b>	73	72 (99%)	0 (0)	73	0 (0%)
<b>Influenza A (H3N2)</b>	11	0 (0)	0 (0)	11	11 (100%)
<b>Influenza B</b>	33	0 (0)	0 (0)	N/A*	N/A*

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

**International (WHO, January 7):** During the weeks 51-52, the overall level of influenza activity in the world began to increase in some countries in Europe. Ireland, Portugal and the United Kingdom of Great Britain and Northern Ireland reported widespread activity with influenza-like illness (ILI) above threshold levels. France also reported increased activity while regional activity was reported in the Netherlands, Spain and local activity in Italy. Activity in many other countries remained low. The majority of viruses identified this season have been influenza A (H3N2).

*Ireland:* Widespread influenza A activity has been reported.

*Italy:* Three influenza A H3N2 influenza isolates were reported during week 52.

*Netherlands:* In week 52 a substantial proportion of specimens from sentinel ILI patients contained influenza virus. To date all influenza viruses detected in specimens from sentinel ILI patients were A(H3N2).

*Portugal:* Widespread influenza A (H3N2) activity was reported.

*Spain:* Regional activity was reported. Influenza A (H3N2) viruses were detected.

*United Kingdom of Great Britain and Northern Ireland:* Influenza activity continued to be widespread across the country with GP consultation rates above the threshold levels in England and Scotland in week 52. The majority of the specimens have been positive for influenza A (H3N2), with low numbers of H1N1 and B detected.

Sporadic influenza activity was observed in Belgium (A), Cameroon (A, B), Canada (A,B), China (H1, H3, B), China Hong Kong Special Administrative Region (H1,H3,B), Finland (A,B), Germany (H1,H3, B), Greece (A) , Iran (H3), Israel (A;B), Japan (H1,H3, B), Latvia (A) , Luxembourg (A), Morocco (H1,B), Netherlands (H3), Norway (H1,H3,B), Russian Federation (H1,H3,B), Slovenia (H1,H3), Switzerland (H3), Tunisia (H1,B) and the United States of America (H1,H3,B).

Croatia, Czech Republic, Estonia, Greece, Lithuania, Malta, Poland, Romania and Serbia reported no influenza activity.

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MDCH reported **SPORADIC INFLUENZA ACTIVITY** to the CDC for the week ending January 3, 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](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**

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### **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 (International Herald Tribune, December 30):** A 2-month-old Hong Kong-born infant who lives in China has contracted a mild strain of bird flu, a health official said Tuesday. The baby girl, who contracted the H9 strain of avian influenza, is currently isolated at a local hospital and is in stable condition, Thomas Tsang, controller of Hong Kong's Center for Health Protection, told a news conference.

The baby lives with her family in the southern Chinese city of Shenzhen but recently visited a hospital in Hong Kong after showing symptoms, Tsang said. He said health officials in the southern Chinese Guangdong province are trying to determine how she caught the virus.

Tsang said Hong Kong has recorded four previous human cases of H9 infections. All patients have fully recovered.

The case came weeks after three dead chickens tested positive for bird flu in Hong Kong, prompting the city to suspend poultry imports for 21 days and begin slaughtering 80,000 birds.

Hong Kong's biggest bird flu outbreak was in 1997, when the more virulent H5N1 strain jumped to humans and killed six people. Bird flu has killed at least 247 people worldwide since 2003, according to the World Health Organization.

**International, Human (Xinhua News Agency, January 7):** Gene sequencing results have indicated the influenza-A (H9N2) virus found in a two-month-old girl in December 2008 was of avian origin, Hong Kong Center for Health Protection said on Wednesday.

The center said that re-assortment with genes of human influenza origin has not been found. The virus is highly similar to the H9N2 virus isolated from another case involving a nine-month-old girl in 2007, the center said. The virus found in the two-month-old girl was sensitive to antiviral medicines Tamiflu and Amantadine.

The girl is being treated in Tuen Mun Hospital for another disease. Her symptoms of H9N2 infection have subsided. Samples taken from her on Jan. 2 tested negative for H9N2. Her close contacts did not develop symptoms of H9N2 infection.

**International, Human (WHO, January 7):** The Ministry of Health in China has reported a new case of human infection with the H5N1 avian influenza virus. The case is a 19-year old female from Chaoyang District, Beijing. She developed symptoms on 24 Dec 2008, was hospitalized, and died on 5 January 2009.

The case was confirmed by the national laboratory. The case had contact with poultry prior to her illness. All contacts have been placed under medical observation. All remain healthy to date. Of the 31 cases confirmed to date in China, 21 have been fatal.

**International, Human (WHO, January 7):** 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 an 8-year old girl from Dien Trung commune, Ba Thuoc district, Thanh Hoa province. She developed symptoms on 27 December 2008 and was hospitalized on 2 January 2009. She is currently in a stable condition. The case 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 107 cases confirmed to date in Viet Nam, 52 have been fatal.

**International, Poultry (OIE, January 2):** In a report submitted to OIE, the Republic of Korea reported the finding of low pathogenic H5N2 avian influenza at a duck farm in Maengdong-myeon through ongoing surveillance efforts. All 6837 birds on the farm were slaughtered, and follow-up screening and disinfection are planned.

**International, Poultry (Reuters, January 3):** Health and veterinary workers culled poultry in a densely populated eastern Indian state on Saturday after a fresh outbreak of H5N1 bird flu, officials said. The latest outbreak of the virus in poultry is the fourth in the state of West Bengal since 2007.

Bird flu first broke out in India in 2006. Millions of chicken and ducks have been culled since to contain the virus, but it has resurfaced from time to time. India has reported no human infections.

West Bengal officials said they had begun culling about 60,000 poultry after the fourth outbreak was confirmed on Saturday near Siliguri town, bordering Bangladesh.

Culling operations in West Bengal to contain the third outbreak had ended barely a fortnight ago.

"We have sent 30 teams to kill chickens and ducks in the village where dead birds tested positive," Surendra Gupta, a senior government official, told Reuters.

Hundreds of thousands of birds had also been culled in India's northeastern Assam state and neighboring Meghalaya after bird flu was detected in November. Experts have warned that the H5N1 virus might mutate or combine with the highly contagious seasonal influenza virus and spark a pandemic that could kill millions of people across the world.

According to the World Health Organization, H5N1 bird flu has infected more than 390 people in 15 countries and killed at least 247 of them since the virus resurfaced in Asia in 2003.

**Michigan Wild Bird Surveillance (USDA, as of January 8):** For the 2008 testing season, 2166 Michigan samples have been taken so far, comprised of 327 live birds, 1282 hunter-killed birds, 32 morbidity or mortality samples and 525 environmental samples.

H5N1 subtype H5N1 has not been recovered from any Michigan samples tested to date, or from the 74,113 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](mailto:VagaskyS@Michigan.gov) with any questions regarding this newsletter or to be added to the weekly electronic mailing list.**

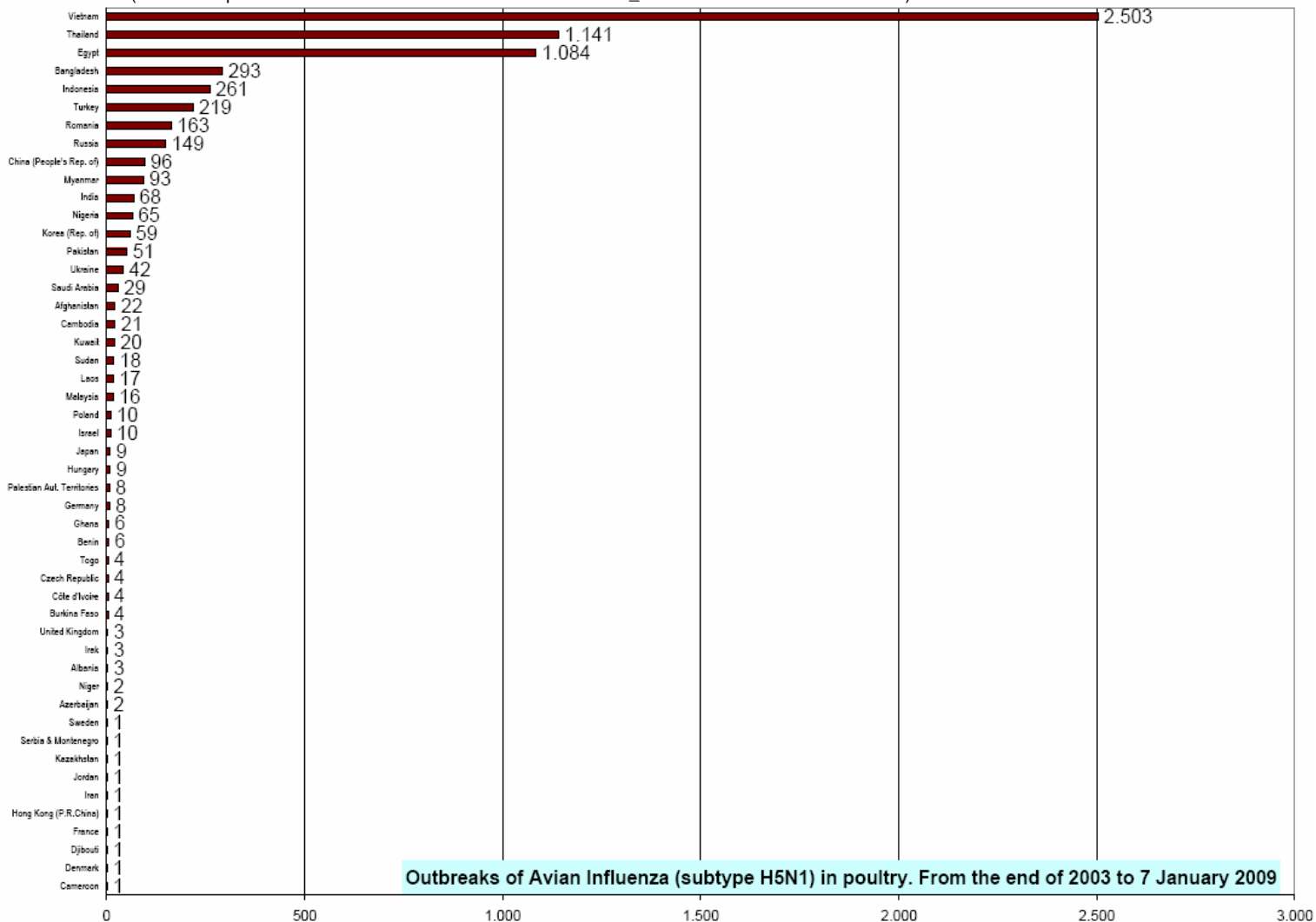
**Contributors**

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**Table 1. H5N1 Influenza in Poultry (Outbreaks up to January 7, 2008)**

(Source: [http://www.oie.int/downld/AVIAN%20INFLUENZA/A\\_AI-Asia.htm](http://www.oie.int/downld/AVIAN%20INFLUENZA/A_AI-Asia.htm) Downloaded 1/8/08)



**Outbreaks of Avian Influenza (subtype H5N1) in poultry. From the end of 2003 to 7 January 2009**

**Table 2. H5N1 Influenza in Humans (Cases up to January 7, 2008)**

([http://www.who.int/csr/disease/avian\\_influenza/country/cases\\_table\\_2009\\_01\\_07/en/index.html](http://www.who.int/csr/disease/avian_influenza/country/cases_table_2009_01_07/en/index.html) Downloaded 1/8/2009)

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

Country	2003		2004		2005		2006		2007		2008		Total	
	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	8	5
Bangladesh	0	0	0	0	0	0	0	0	0	0	1	0	1	0
Cambodia	0	0	0	0	4	4	2	2	1	1	1	0	8	7
China	1	1	0	0	8	5	13	8	5	3	4	4	31	21
Djibouti	0	0	0	0	0	0	1	0	0	0	0	0	1	0
Egypt	0	0	0	0	0	0	18	10	25	9	8	4	51	23
Indonesia	0	0	0	0	20	13	55	45	42	37	22	18	139	113
Iraq	0	0	0	0	0	0	3	2	0	0	0	0	3	2
Lao PDR	0	0	0	0	0	0	0	0	2	2	0	0	2	2
Myanmar	0	0	0	0	0	0	0	0	1	0	0	0	1	0
Nigeria	0	0	0	0	0	0	0	0	1	1	0	0	1	1
Pakistan	0	0	0	0	0	0	0	0	3	1	0	0	3	1
Thailand	0	0	17	12	5	2	3	3	0	0	0	0	25	17
Turkey	0	0	0	0	0	0	12	4	0	0	0	0	12	4
Viet Nam	3	3	29	20	61	19	0	0	8	5	6	5	107	52
<b>Total</b>	<b>4</b>	<b>4</b>	<b>46</b>	<b>32</b>	<b>98</b>	<b>43</b>	<b>115</b>	<b>79</b>	<b>88</b>	<b>59</b>	<b>42</b>	<b>31</b>	<b>393</b>	<b>248</b>