



# MI FluFocus

## Influenza Surveillance and Avian Influenza Update

Bureau of Epidemiology  
Bureau of Laboratories



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### New updates in this issue:

- **Michigan Surveillance:** Influenza activity upgraded to “local” based on small, steady increases in SE.
- **National Surveillance:** South Dakota reports a human swine influenza case.
- **Avian Influenza:** China confirms three new human H5N1 avian influenza cases.

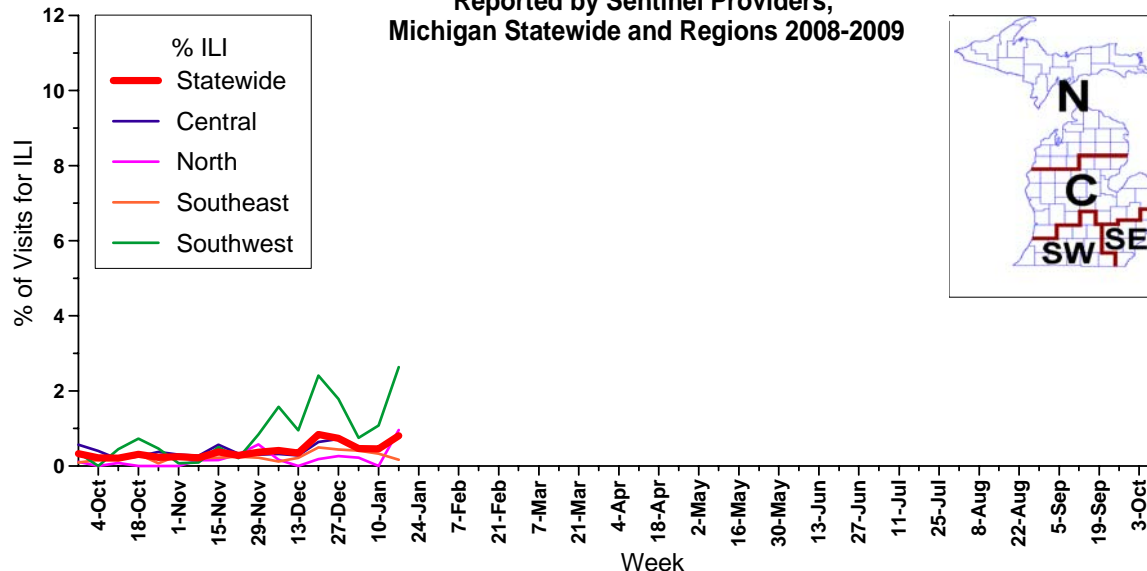
**Michigan Disease Surveillance System:** The week ending January 17 saw both individual influenza disease reports and aggregate flu-like numbers continue to increase slightly compared to what was seen last week. Both numbers are notably lower than levels seen at this time last year.

**Emergency Department Surveillance:** Emergency department visits from constitutional complaints increased slightly, especially in the SE Influenza Surveillance Region, while respiratory complaints decreased. Both of these numbers are slightly lower than those seen this time last year. Seven constitutional alerts in the C(2), SE(1) and SW(4) Influenza Surveillance Regions and four respiratory alerts in the C(2), N(1) and SW(1) Influenza Surveillance Regions were generated last week.

**Over-the-Counter Product Surveillance:** Overall, OTC product sales were mixed last week. Children’s electrolytes and thermometer sales increased slightly over last week, chest rubs saw a slight drop in sales, and cough and cold medicine remained near the previous week’s levels. Indicator levels are comparable to those seen at this time last year.

**Sentinel Provider Surveillance (as of January 22):** During the week ending January 17, 2009, the proportion of visits due to influenza-like illness (ILI) remained at a low level, 0.8% overall; 68 patient visits due to ILI were reported out of 8,435 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 (0.8%), North (1.0%) and Southeast (0.2%). The Southwest region increased to 2.6%, with pediatric practices and a student health center reporting a majority of the ILI cases. Thirty-four 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 22):** During the past week, 5 new influenza A isolates and 3 new influenza B isolates have been identified at the MDCH Bureau of Laboratories (BOL). For the 2008-2009 influenza season, MDCH BOL has identified 39 influenza isolates (followed by Influenza Surveillance Regions of origin):

- 24 A/H1N1 (12SE, 11SW, 1N)
- 1 A/H3N2 (C)
- 7 A subtype pending (1SE, 2SW, 2C, 2N)
- 7 B (1SE, 6SW). 1 isolate is B/Florida/4/2006-like (SE); 2 are B/Malaysia/2506/2004-like (2SW); 4 are pending characterization (4SW).

During the past week, 10 out of 12 sentinel laboratories reported influenza positive tests. Increasing levels of influenza A were reported by 4 labs in the SE and SW Surveillance Regions, while labs in the C and N Regions saw more sporadic influenza A activity. Influenza B activity continues to be low with only labs in the SE and SW Regions reporting activity. RSV activity continues to increase at a moderate rate in all surveillance regions.

\*\*\*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 22):** 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 22):** 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 22):** 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 22):** 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], January 16):** During week 1 (January 4-10, 2009), overall influenza activity in the United States remained relatively low, but increased compared to previous weeks. Two hundred forty-two (7.1%) 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

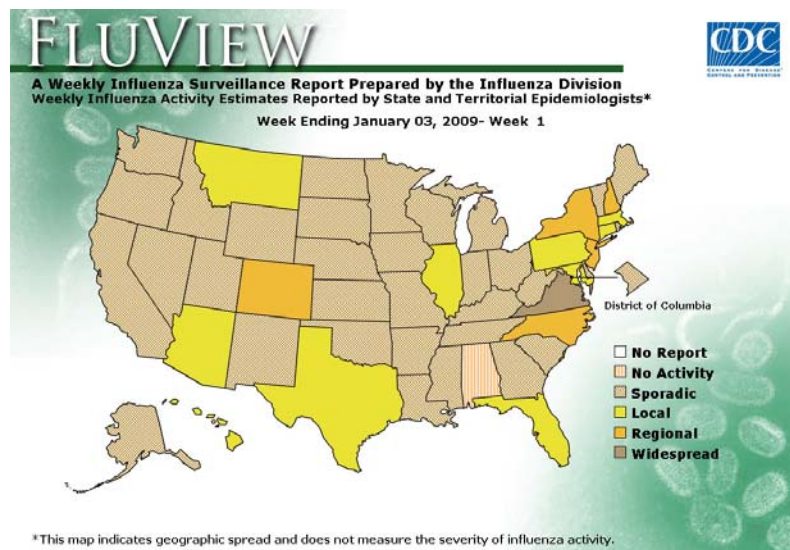
and influenza (P&I) was below the epidemic threshold. The proportion of outpatient visits for influenza-like illness (ILI) was below national and region-specific baseline levels. One state reported widespread influenza activity, five states reported regional activity; 10 states reported local influenza activity; the District of Columbia, Puerto Rico and 33 states reported sporadic influenza activity; and one state reported no influenza activity.

CDC has antigenically characterized 158 influenza viruses [93 influenza A (H1), 13 influenza A (H3) and 52 influenza B viruses] collected by U.S. laboratories since October 1, 2008. All 93 influenza A (H1) viruses are related to the influenza A (H1N1) component of the 2008-09 influenza vaccine (A/Brisbane/59/2007). All 13 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. Seventeen influenza B viruses tested belong to the B/Yamagata lineage and are related to the vaccine strain (B/Florida/04/2006). The remaining 35 viruses belong to the B/Victoria lineage and are not related to the vaccine strain. Thirty of the 35 viruses belonging to the B/Victoria lineage were from two states.

Since October 1, 2008, 103 influenza A (H1N1), 23 influenza A (H3N2), and 61 influenza B viruses from 25 states have been tested for resistance to the neuraminidase inhibitors (oseltamivir and zanamivir). One hundred three influenza A (H1N1) and 23 influenza A (H3N2) viruses from 23 states 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		
<b>Influenza A (H1N1)</b>	103	101 (98%)	0 (0)	103	1 (1%)
<b>Influenza A (H3N2)</b>	23	0 (0)	0 (0)	23	23 (100%)
<b>Influenza B</b>	61	0 (0)	0 (0)	N/A*	N/A*

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



\*This map indicates geographic spread and does not measure the severity of influenza activity.

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 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 **LOCAL INFLUENZA ACTIVITY** to the CDC for the week ending January 17, 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.

**National, Human (South Dakota Department of Health, January 14):** South Dakota has reported a case of swine flu in a human, a 19-year-old South Dakota State University student. The individual was ill five weeks ago and a specimen was collected December 4, 2008. The state Public Health Laboratory identified the A/H1 portion of the virus and just this week, the Centers for Disease Control and Prevention (CDC) influenza lab identified the swine components of the virus.

“Swine flu in humans is rare but it does occur,” said Dr. Lon Kightlinger, State Epidemiologist for the department. “Most often, the cases occur in people with direct exposure to pigs, such as swine farm workers. Human to human transmission is very rare.”

Nationally, the CDC typically receives about one report of swine flu virus in a human each year. The South Dakota case is believed to be the state’s first case.

Kightlinger said the department is on enhanced surveillance for additional cases and is working closely with CDC and the U.S. Department of Agriculture on the case investigation.

The symptoms of swine flu in people are the same as those of seasonal human flu. They include a fever with a cough, sore throat, body aches, and tiredness. It is also possible to be infected and have no symptoms. There is a swine flu vaccine for pigs but because people seldom become infected with the virus, there is no human vaccine. Seasonal flu activity is low in Brookings and in the state this year.

Dr. Sam Holland, State Veterinarian, noted that swine viruses are often observed in routine poultry disease surveillance, due to the ever-present and circulating nature of influenza viruses. “We also know that the strains of flu viruses circulating in pigs do contain genes common to influenza viruses in humans. Influenza viruses are constantly circulating and mutating among birds, animals, and people so the occasional finding of a bird or swine virus in people or vice versa is not a surprise,” said Dr. Holland.

More information about swine flu is available from the Centers for Disease Control and Prevention at <http://www.cdc.gov/flu/swine/pdf/facts.pdf> or from the Iowa Department of Health at [http://www.idph.state.ia.us/adper/common/pdf/epifacts/swine\\_influenza.pdf](http://www.idph.state.ia.us/adper/common/pdf/epifacts/swine_influenza.pdf).

**International, Human (WHO, January 19):** The Ministry of Health in China has reported 3 new cases of human infection with the H5N1 avian influenza virus.

The first case is a 27 year old female from Jinan City, Shandong Province. She developed symptoms on 5 January, was hospitalized, and died on 17 January. The source of her infection is presently under investigation.

The second case is a 2 year old female from Luliang City, Shanxi Province. She developed symptoms on 7 January, was hospitalized, and is in a critical condition. The source of her infection is presently under investigation.

The third case is a 16 year old male from Huaihua City, Hunan Province. He developed symptoms on 8 January, was hospitalized on 16 January, and is in a critical condition. The case had exposure to sick and dead poultry.

All 3 cases were confirmed by the national laboratory. All contacts have been placed under medical observation and remain healthy to date. Of the 34 cases confirmed to date in China, 22 have been fatal.

**International, Human (WHO, January 22):** The Ministry of Health of Indonesia has announced two new confirmed cases of human infection with the H5N1 avian influenza virus. A 29-year-old female from Tangerang District, Banten Province developed symptoms on 11 December 2008, was hospitalized on 13 December and died on 16 December. The investigation indicated that she visited a wet market to buy fresh produce, including chicken meat, on a daily basis. Household contacts were placed under medical observation, where none developed illness.

The second case, a 5-year-old female from Bekasi City, West Java Province developed symptoms on 23 December 2008, was hospitalized on 27 Dec 2008 and died on 2 January 2009. The investigation indicated that she visited a wet market to buy chicken meat and eggs two days prior to symptom onset. Contacts were placed under medical observation, where none developed illness.

Laboratory tests confirmed the presence of the H5N1 avian influenza virus in both cases. Of the 141 cases confirmed to date in Indonesia, 115 have been fatal.

**International, Poultry (BBC, January 16):** Nepal has confirmed its first case of the deadly H5N1 strain of bird flu, officials say. The agriculture ministry said the virus had been found in chickens and ducks in the south-eastern town of Kakarvitta, near the Indian border.

Officials said an emergency zone had been declared and a culling operation was in place. There are no reports of any human infection. Bird flu has killed nearly 250 people in 15 countries since 2003. Health officials said tests were performed after 12 chickens died in unknown circumstances on Thursday. Officials were sent on Friday to cull 13,000 birds to try to control the virus around the town, Reuters reported.

Agriculture Minister Jai Prakash Prasad Gupta told the news agency: "We got the confirmation today and are now seeking international help to fight the outbreak." Officials believe the virus could have come from India where millions of birds have been culled since the virus was first detected there in 2006. Mr. Gupta said Nepal had been on alert given the outbreaks in India.

H5N1 does not transmit easily to humans but experts fear it could mutate and cause a worldwide pandemic.

**International, Poultry (DEFRA International Animal Health [edited], January 16):** Update: low pathogenic avian influenza in Germany and Poland: H5N3

1. Disease report: Following the outbreaks reported from Lower Saxony, Germany of LPAI H5N3 in turkey farms, there have been further developments. The total number of outbreaks detected in Lower Saxony is now 30. The latest was confirmed on 14 Jan 2009. To date, around 475,000 turkeys have been culled. All outbreaks except one have occurred on turkey farms. The other outbreak was on a mixed holding where turkeys were also kept, and geese and ducks were affected as well.

The new outbreak on 12 Jan 2009 is on the outskirts of the Bosel/Garrel restriction zone and will lead to a small expansion of the zone. The new outbreak on 14 Jan 2009 is in Freisoythe-Ikenbrugge, and again

will lead to an expansion of the restriction zone. On 29 Dec 2009, Poland reported suspicion of disease in turkeys on a poultry farm in Goleniowski region. Samples were taken from 10 dead turkeys, and initial laboratory tests were weakly positive, although subsequent samples from other birds on the holding were negative. Nevertheless, Poland put disease control measures in place, and the birds (nearly 20,000) were culled on 4 Jan 2009.

2. Situation assessment: Poland imposed strict disease controls on the premises, despite samples only giving a very weak signal for presence of LPAI. They did so on the basis of epidemiological evidence of trace-back to a hatchery in Germany, in the affected region (European Commission 2009a). There is no evidence that the hatchery involved was one of the infected premises, but Germany will carry out further investigations. The actions of Poland are understandable given the situation in Germany, and they were praised by the Commission at the latest SCoFCAH meeting. Poland has since declared itself free of LPAI.

The strain involved in the outbreaks in Germany is causing very few or no clinical signs, but it does appear to spread quickly. Surveillance programmes are designed to detect a threshold level of usually between 5 and 10 per cent prevalence. It is therefore not unexpected that some cases may be detected after initial surveillance, when the disease has reached a higher level. The epidemiological pattern of these outbreaks appears to suggest silent spread of a subclinical infection, which is why it has taken some time before some outbreaks were detected.

According to TRACES, the EU electronic trade notification system, there have been 3 consignments of live poultry from Germany to the UK since our previous risk assessment. All were chickens, and 2 of these were from Lower Saxony, but at least 80 km from the outbreaks. Even so, because the outbreaks have been confined to turkeys, movement restrictions on chickens and other poultry were lifted in December 2008 and movement allowed according to case-by-case risk assessment. Restrictions remain in place for movements of turkeys. There have been no consignments of poultry from Poland.

3. Conclusions: At this stage, we consider that this incident in Germany does not change the continuous ongoing low risk of LPAI (and similarly HPAI) being detected over a wider geographic area of the EU, including the UK. So far, there is no indication that the strain has the potential to mutate to a HPAI strain. This event emphasizes the importance of implementing and maintaining appropriate biosecurity measures at all times. We continue to monitor and review the situation.

**International, Poultry (The Hindu [edited], January 19):** There has been an outbreak of bird flu in the Ravangla area of Sikkim's south district [India], Minister for Food, Civil Supplies and Animal Husbandry K. Subba, told The Hindu over telephone on Monday [19 Jan 2009]. "Samples of 33 dead poultry birds had been sent to the High Security Disease Laboratory in Bhopal for tests. That the deaths were caused by bird flu was officially confirmed on Sunday [18 Jan 2009]," Ms. Subba said.

Steps are being taken for the culling of birds in the affected region. "There is a proposal for destroying about 20,000 birds, but since there is no report of the disease spreading, we will determine the final numbers to be culled after 2 or 3 days," she added.

Steps are also being taken to prevent the supply of poultry products from the Ravangla area to other parts of the state. "We have already banned all imports of poultry birds from other states since bird flu was reported in Assam more than a month ago," Ms. Subba said.

**Michigan Wild Bird Surveillance (USDA, as of January 22):** 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.

HPAI subtype H5N1 has not been recovered from any Michigan samples tested to date, or from the 75,403 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.nhii.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.**

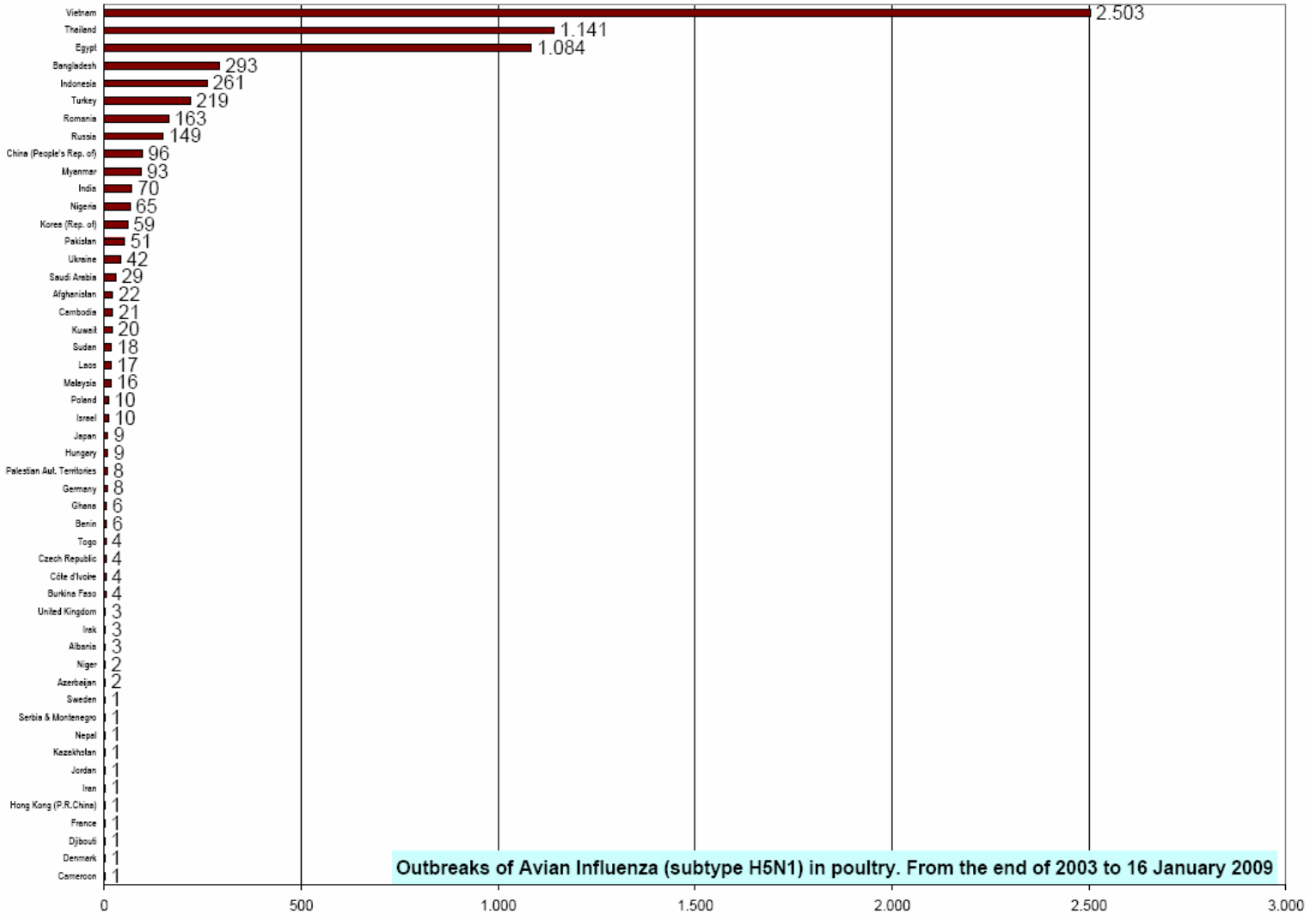
**Contributors**

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**Table 1. H5N1 Influenza in Poultry (Outbreaks up to January 16, 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 1/20/08)



**Table 2. H5N1 Influenza in Humans (Cases up to January 22, 2008)**

([http://www.who.int/csr/disease/avian\\_influenza/country/cases\\_table\\_2009\\_01\\_22/en/index.html](http://www.who.int/csr/disease/avian_influenza/country/cases_table_2009_01_22/en/index.html) Downloaded 1/22/2009)

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	3	1	34	22
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	1	0	52	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	0	0	107	52
Total	4	4	46	32	98	43	115	79	88	59	44	33	4	1	399	251