



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:

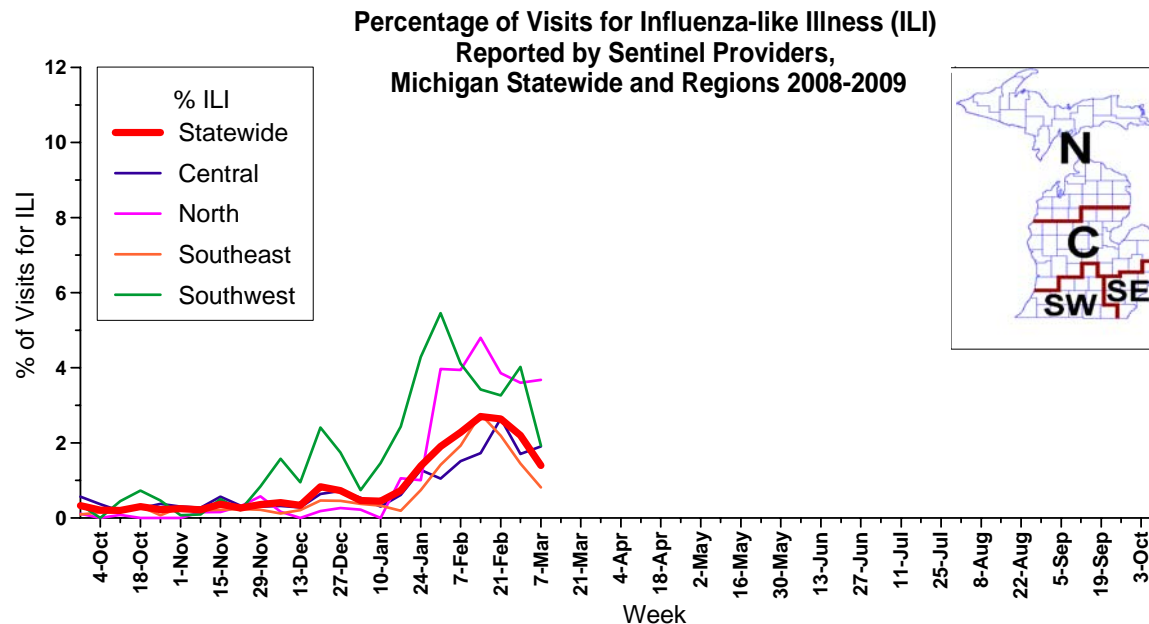
- **Michigan Surveillance:** Overall, Michigan influenza activity held steady during week 9.
- **National Surveillance:** During week 8, influenza activity nationwide was similar to the previous week.
- **Avian Influenza:** Egypt reports two new human cases of H5N1 avian influenza.

Michigan Disease Surveillance System: The week ending March 7 saw aggregate flu-like numbers decrease slightly, and individual numbers increase slightly, compared to what was seen last week. Individual numbers are comparable to numbers seen this time last year, while aggregate numbers are lower.

Emergency Department Surveillance: Emergency department visits from both constitutional and respiratory complaints dropped slightly this past week. These numbers are comparable to numbers seen this time last year. Seven constitutional alerts in the C(6) and SW(1) Influenza Surveillance Regions and two respiratory alerts in the C(2) Influenza Surveillance Region were generated last week.

Over-the-Counter Product Surveillance: Overall, OTC product sales were mixed last week. Cough and cold medicine and thermometer sales held steady in comparison to last week. The remainder of the indicators saw a slight decrease. Indicator levels are comparable to those seen at this time last year.

Sentinel Provider Surveillance (as of March 12): During the week ending March 7, 2009, the proportion of visits due to influenza-like illness (ILI) in Michigan is slightly above baseline but declined to 1.4% overall. This represents 131 patient visits due to ILI reported out of 9,335 office visits; 32 sentinel sites provided data for this report. Activity declined in two surveillance regions: Southeast (0.8%) and Southwest (1.9%); and slightly increased in the other two surveillance regions: Central (1.9%) and North (3.7%). Note that these rates may change as additional reports are received.



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 Cristi Carlton at 517-335-9104 or CarltonC2@michigan.gov for more information.

Laboratory Surveillance (as of March 12): During the past week, 24 new influenza A isolates and 15 new influenza B isolates were identified at the MDCH Bureau of Laboratories (BOL). For the 2008-2009 influenza season, MDCH BOL has identified 203 influenza isolates (followed by Influenza Surveillance Regions of origin):

- 124 A/H1N1 (42SE, 29SW, 22C, 31N)
- 3 A/H3N2 (1SE, 1C, 1N)
- 8 A subtype pending (3SE, 1SW, 1C, 3N)
- 68 B (12SE, 11SW, 13C, 16N). 9 isolates are B/Florida/4/2006-like (4SE, 1SW, 1C, 3N); 51 are B/Malaysia/2506/2004-like (12SE, 12SW, 7C, 20N); 8 are pending characterization (2SE, 2SW, 4C).

For the week ending March 7, 14 sentinel labs reported. Influenza A reporting was mixed, with 5 labs (SE, C, N) reporting increasing influenza A positives, 6 labs reporting elevated but steady positives (SE, SW, C, N) and 3 labs (C, N) with decreasing A positives. Influenza B reporting was also mixed, as 8 labs (SE, SW, C, N) reported increasing influenza B positives, 5 labs (SW, C, N) reported level or decreasing B positives, and 1 lab (N) reported no B activity. RSV activity was level to decreasing at all labs.

***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 March 12): At this time, 24 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.

At this time, 3 influenza B isolates have been antigenically characterized by the CDC. One influenza B isolate has been characterized as B/Florida/4/2006-like, which matches the influenza B component of this season's vaccine. Two influenza B isolates have been characterized as B/Brisbane/60/2008-like, which does not match this season's vaccine, but is a recommended component of the 2009-2010 vaccine.

Michigan Antiviral Resistance Data (as of March 12): 24 influenza A/H1N1 viruses from the MDCH Bureau of Laboratories have been tested for antiviral resistance at CDC for the 2008-2009 season. All 24 viruses were resistant to oseltamivir (Tamiflu®) and sensitive to zanamivir, amantadine and rimantadine. These viruses were collected in the SE(11), SW(12) and N(1) Influenza Surveillance Regions. One influenza A/H3N2, collected in the C Region, has been tested for antiviral resistance; that virus was resistant to the adamantanes (amantadine and rimantadine) and sensitive to oseltamivir and zanamivir. Two influenza B isolates, collected in the SW Region, have been tested for antiviral resistance; these viruses were sensitive to oseltamivir and zanamivir (the adamantanes are not effective against B viruses).

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 March 12): One influenza-associated pediatric mortality due to influenza A (SW) has 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 March 12): One influenza outbreak from the North Surveillance Region in a long-term care facility was reported during the past week. This outbreak had positive rapid

influenza tests associated with it, but further subtyping was unavailable. Three congregate setting outbreaks (1C, 2N) due to influenza (1 influenza A, 1 influenza B, 1 untyped) have been reported to MDCH for the 2008-09 influenza season.

National (CDC [edited], March 6): During week 8 (February 22-28, 2009), influenza activity in the United States remained at approximately the same level as in the previous week. One thousand four hundred eighteen (21.2%) 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. Five influenza-associated pediatric deaths were reported. The proportion of outpatient visits for influenza-like illness (ILI) was above the national baseline. ILI increased nationally and in five of the nine regions compared to the previous week. All nine surveillance regions reported ILI above their region-specific baselines. Thirty-one states reported widespread influenza activity, 16 states reported regional activity; the District of Columbia and two states reported local influenza activity; and Puerto Rico and one state reported sporadic influenza activity. One human infection with a novel influenza A virus was reported.

One case of human infection with a novel influenza A virus was reported by the Iowa Department of Public Health during week 8. The person was infected with a swine influenza A (H1N1) virus, and reported contact with ill pigs. Although human infection with swine influenza A virus resulting in illness appears to be uncommon, a few sporadic cases have been reported each year, usually among people in direct contact with ill pigs or who have been in places where pigs may have been present (e.g. agricultural fairs or farms). The sporadic cases of human infections with swine influenza viruses identified in recent years have not resulted in sustained human-to-human transmission or community outbreaks. Nonetheless, when cases are identified, CDC recommends thorough investigations to evaluate the extent of the outbreak and possible human-to-human transmission, as transmission patterns may change with changes in swine influenza viruses.

CDC has antigenically characterized 530 influenza viruses [325 influenza A (H1), 53 influenza A (H3) and 152 influenza B viruses] collected by U.S. laboratories since October 1, 2008.

All 325 influenza A (H1) viruses are related to the influenza A (H1N1) component of the 2008-09 influenza vaccine (A/Brisbane/59/2007). All 53 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. Thirty-seven influenza B viruses tested belong to the B/Yamagata lineage and are related to the vaccine strain (B/Florida/04/2006). The remaining 115 viruses belong to the B/Victoria lineage and are not related to the vaccine strain.

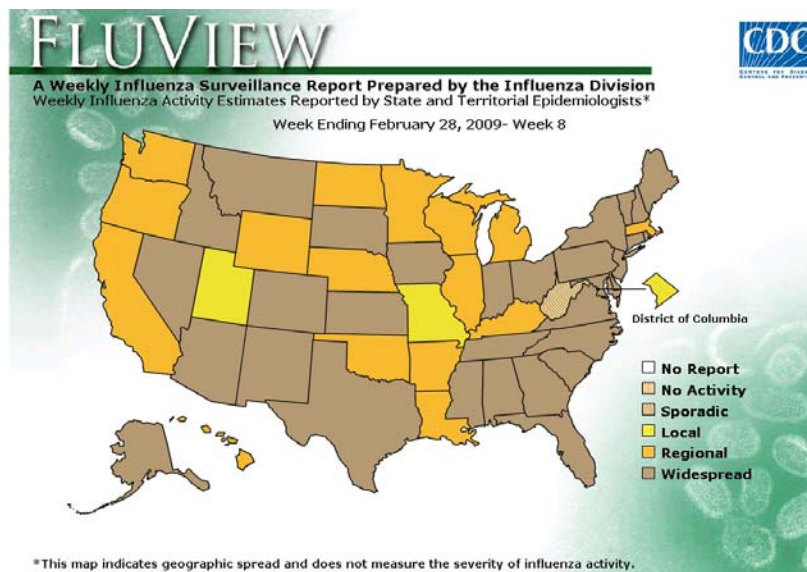
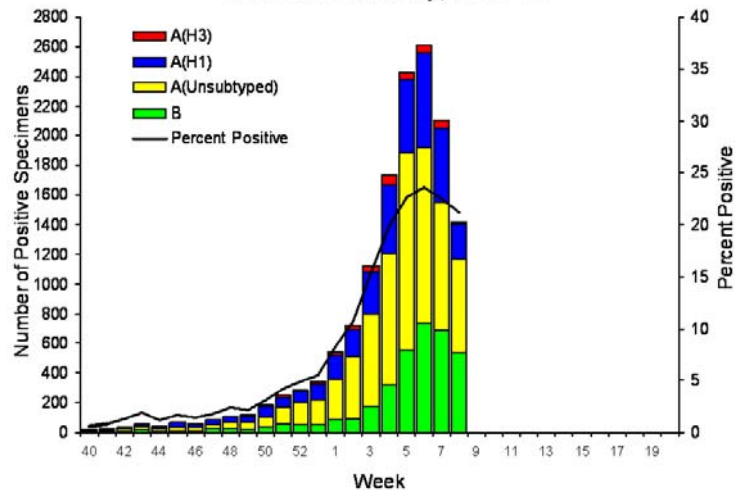
Since October 1, 2008, 364 influenza A (H1N1), 56 influenza A (H3N2), and 166 influenza B viruses have been tested for resistance to the neuraminidase inhibitors (oseltamivir and zanamivir). Three hundred sixty-five influenza A (H1N1) and 56 influenza A (H3N2) viruses have been tested for resistance 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)	364	359 (98.6%)	0 (0)	365	3 (0.8%)
Influenza A (H3N2)	56	0 (0)	0 (0)	56	56 (100%)
Influenza B	166	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>

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



International (WHO [edited], March 5): During the weeks 7-8, the level of overall influenza activity in the world continued to increase. Influenza activity remained high in central and eastern Europe while continued to decrease in western Europe. Influenza A (H3) remained the dominant influenza virus circulating in Europe. In the United States of America influenza activity also increased with the predominant virus still influenza A (H1).

Sporadic influenza activity was observed in Chile (H1), China (H1,H3, B), Denmark (H1,H3, B), Iran (H3,B), Italy (H1,H3), Kazakhstan (A,B), Kenya (A,B), Mongolia (H1,B), Portugal (H3), Slovenia (H3,B), Spain (H3,B) and United Kingdom of Great Britain and Northern Ireland (H1,H3, B).

Argentina and Bulgaria 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 March 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, March 10): The Ministry of Health and Population of Egypt has reported a new confirmed human case of avian influenza. The new case is a two and a half year old male from Amaria District, Alexandria Governorate. His symptoms began on 3 March and he was hospitalized at Alexandria Fever Hospital where he remains in a stable condition. Infection with H5N1 avian influenza was confirmed by the Egyptian Central Public Health Laboratory on 4 March.

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

Of the 57 cases confirmed to date in Egypt, 23 have been fatal.

International, Human (WHO, March 11): The Ministry of Health and Population of Egypt has reported a new confirmed human case of avian influenza. The new case is a one and a half year old female from Menofia Governorate. Her symptoms began on 6 March and she was hospitalized on 9 March where she remains in a stable condition. Infection with H5N1 avian influenza was confirmed on 10 March by the Egyptian Central Public Health Laboratory.

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

Of the 58 cases confirmed to date in Egypt, 23 have been fatal.

International, Poultry (DEFRA, March 5): Further laboratory tests have now confirmed that the H6N1 avian influenza virus present at 2 poultry premises in East Anglia [United Kingdom] is of low pathogenicity.

This means that the routine restrictions put in place while the investigations were ongoing are no longer required and have now been lifted, as the presence of a statutory notifiable disease has been ruled out.

The H6 serotype of avian influenza virus has been found in wild birds in Europe as well as in poultry in previous years. However, to date, H6 has not been found to be highly pathogenic.

It is important that poultry keepers remain vigilant by looking for any signs of disease in their birds. Any concerns should be reported immediately to their local vet or reported to the Animal Health Agency so that statutory notifiable disease can be ruled out promptly.

International, Poultry (www.news.gov/hk, March 6): A chicken carcass found in Tung Ping Chau [Hong Kong] has been confirmed to be H5N1-positive, the Agriculture, Fisheries & Conservation Department says.

The carcass was found floating in the sea off Tung Ping Chau's Kang Lau Shek on March 2. It was highly decomposed when found and required a series of confirmatory tests for avian influenza. Test results available today confirmed that the bird was H5N1 positive.

There are no poultry farms within three kilometres of where the bird was found. No unauthorised keeping of poultry has been observed during inspections.

International, Poultry (Kyodo News, March 10): A third case of bird flu infection among quails at farms in Aichi Prefecture has been detected, the prefecture and the agriculture ministry said Monday.

The virus was detected after checking a farm in Toyohashi which received quail chicks shipped from another farm where the second bird flu case was found, the Ministry of Agriculture, Forestry and Fisheries and the prefecture said.

The virus is believed to be a weak-virulent subtype, they said.

If the virus is determined to be a highly pathogenic type through a detailed examination, the entire quail population of some 110,000 at the farm will be culled, according to the ministry and prefecture.

The prefecture asked two bird farms in the vicinity of the infected farm to refrain from transporting eggs and other farm products.

The local government announced the first case of the infection detected at a Toyohashi farm on Feb. 27 and restricted transfers of eggs and other products within a radius of 5 kilometers.

Then quails at another farm in the prefecture tested positive for the bird flu and the central and local authorities have been tracking down the movement of the products from the farm.

The bird flu virus detected in the first and second cases was identified as a highly pathogenic H7N6 subtype and a special team dispatched by the ministry is investigating the infection routes.

International, Wild Birds (Reuters, March 10): Germany has informed the European Commission of an outbreak of H5N1 bird flu, the EU's first case of the lethal strain of the contagious disease in poultry this year.

The outbreak "was found in a wild duck shot during a hunt near the town of Starnberg in the German state of Bavaria," the European Union's executive arm said in a statement.

The district office in Starnberg, just southwest of Munich, said in a statement the duck was shot on Jan. 10 and tested as part of an EU-wide monitoring programme. None of the 39 birds shot on the hunt showed signs of illness.

Experts said the positive test was not surprising as wild birds are a natural 'virus reservoir', the Starnberg district office added. "Individual positive findings in the framework of the monitoring of wild birds are, furthermore, to be expected," the office said.

"There are no indications that during the last eight weeks a highly pathogenic virus has, directly or indirectly via a wild bird, been introduced into a poultry stock, or carried on from there," the district office added. "There are so far no indications of the virus spreading in the wild bird population," the office said.

The Starnberg authorities had not made any area off-limits or set up a monitoring area following the positive test.

"On basis of the favourable result of a risk assessment, Germany may refrain from the establishment of a control area and a surrounding monitoring area around a positive finding," the European Commission said in its statement.

The last wild-bird case of bird flu in the 27-nation bloc was found in a Canadian goose in Britain in February last year, while the last outbreak in poultry of H5N1 in the EU was detected last October in the German state of Saxony.

Michigan Wild Bird Surveillance (USDA, as of March 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 77,409 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.

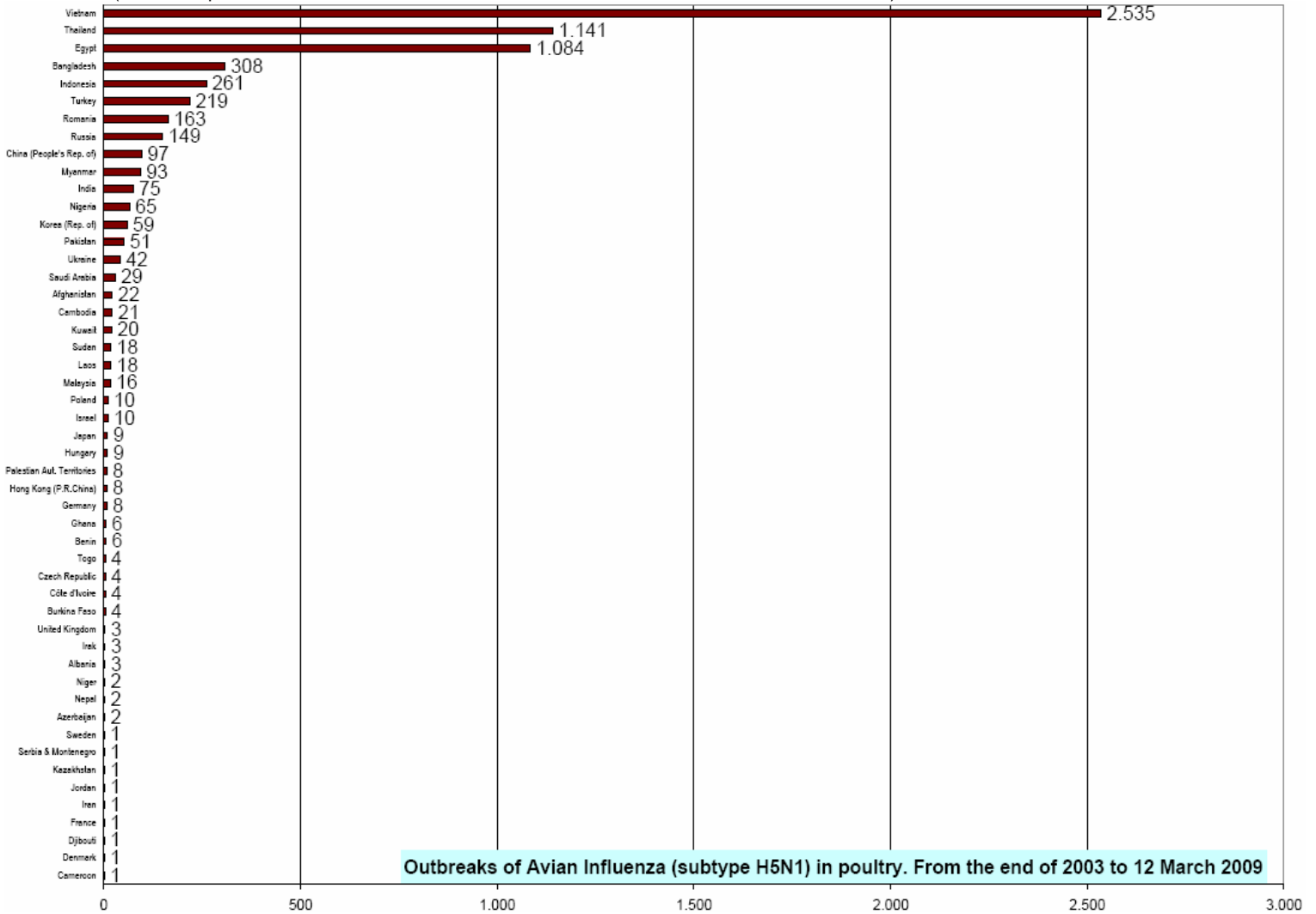
Contributors

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Table 1. H5N1 Influenza in Poultry (Outbreaks up to March 12, 2009)

(Source: http://www.oie.int/downld/AVIAN%20INFLUENZA/A_AI-Asia.htm Downloaded 3/12/09)



Outbreaks of Avian Influenza (subtype H5N1) in poultry. From the end of 2003 to 12 March 2009

Table 2. H5N1 Influenza in Humans (Cases up to March 11, 2009)

(http://www.who.int/csr/disease/avian_influenza/country/cases_table_2009_03_11/en/index.html Downloaded 3/11/2009)

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	7	0	58	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	2	2	109	54
Total	4	4	46	32	98	43	115	79	88	59	44	33	16	6	411	256