



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:** All influenza surveillance indicators continue to show increased activity.
- **National Surveillance:** 32 states report widespread or regional activity for week 6.
- **Avian Influenza:** Vietnam reports a new human case of H5N1 avian influenza.

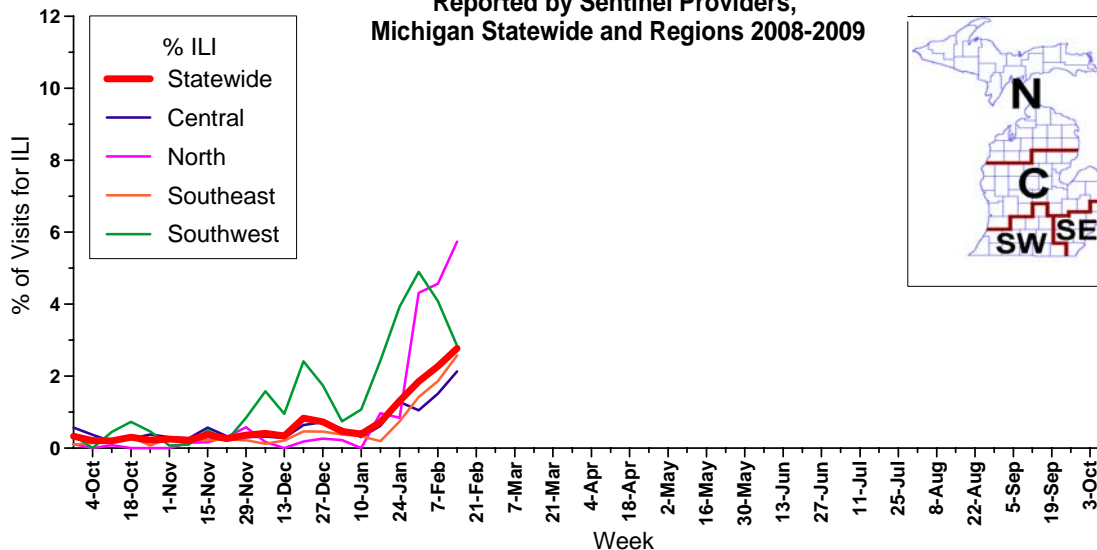
Michigan Disease Surveillance System: The week ending February 14 saw both individual influenza disease reports and aggregate flu-like numbers continue to increase compared over what was seen last week. Individual numbers are notably lower than levels seen at this time last year, while aggregate numbers are comparable.

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

Over-the-Counter Product Surveillance: Overall, OTC product sales were mixed last week. Thermometer and children's electrolytes sales were up slightly while the other 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 19): During the week ending February 14, 2009, the proportion of visits due to influenza-like illness (ILI) continued to increase to 2.8% overall; 298 patient visits due to ILI were reported out of 10,762 office visits. Activity increased in three surveillance regions: Central (2.1%), North (5.7%), Southeast (2.6%) and decreased in the Southwest (2.8%) region. However, one of the reasons the SW region decreased was due to a few sites not reporting that have consistently reported relatively higher numbers in the preceding weeks. Once additional reports from these sites are submitted the rates are subject to change. Urgent Care centers, Pediatrician offices and Student Health centers submitted the majority of the reports. Thirty-eight sentinels provided data for this report.

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

Laboratory Surveillance (as of February 19): During the past week, 7 new influenza A isolates and 9 new influenza B isolates were identified at the MDCH Bureau of Laboratories (BOL). For the 2008-2009 influenza season, MDCH BOL has identified 126 influenza isolates (followed by Influenza Surveillance Regions of origin):

- 87 A/H1N1 (32SE, 27SW, 18C, 10N)
- 2 A/H3N2 (1SE, 1C)
- 1 A subtype pending (N)
- 36 B (10SE, 11SW, 2C, 13N). 7 isolates are B/Florida/4/2006-like (4SE, 1C, 2N); 15 are B/Malaysia/2506/2004-like (4SW, 1C, 10N); 25 are pending characterization (6SE, 7SW, 1N).

During the week ending February 14, 14 sentinel labs reported influenza positives. Increases in influenza A positives were reported by 7 labs in all Surveillance Regions, while 8 labs in all Surveillance Regions saw increases in influenza B activity. 7 labs from all Surveillance Regions are reporting sporadic influenza A positives and 6 labs from all regions are seeing sporadic influenza B's. RSV positives increased in 8 labs, representing all 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 February 19): At this time, 14 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 19): 14 influenza A/H1N1 viruses from the MDCH Bureau of Laboratories have been tested for antiviral resistance at CDC for the 2008-2009 season. All 14 viruses were resistant to oseltamivir (Tamiflu®) and sensitive to zanamivir, amantadine and rimantadine. These viruses were collected in the SE(8) and SW(6) 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 19): 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 19): 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 13): During week 5 (February 1-7, 2009), influenza activity continued to increase in the United States. One thousand one hundred fifty-four (20.6%) 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 above the national baseline. ILI increased in eight of the nine regions compared to the previous week, and the East North Central, East South Central, Mountain, New England, Pacific, South Atlantic, and West South Central regions reported ILI above their region-specific baselines. Sixteen states reported widespread influenza activity, 16 states reported regional activity; the District of Columbia and 14 states reported local influenza activity; and Puerto Rico and four states reported sporadic influenza activity.

CDC has antigenically characterized 309 influenza viruses [194 influenza A (H1), 37 influenza A (H3) and 78 influenza B viruses] collected by U.S. laboratories since October 1, 2008.

All 194 influenza A (H1) viruses are related to the influenza A (H1N1) component of the 2008-09 influenza vaccine (A/Brisbane/59/2007). All 37 influenza A (H3N2) viruses are related to the A (H3N2) vaccine component (A/Brisbane/10/2007).

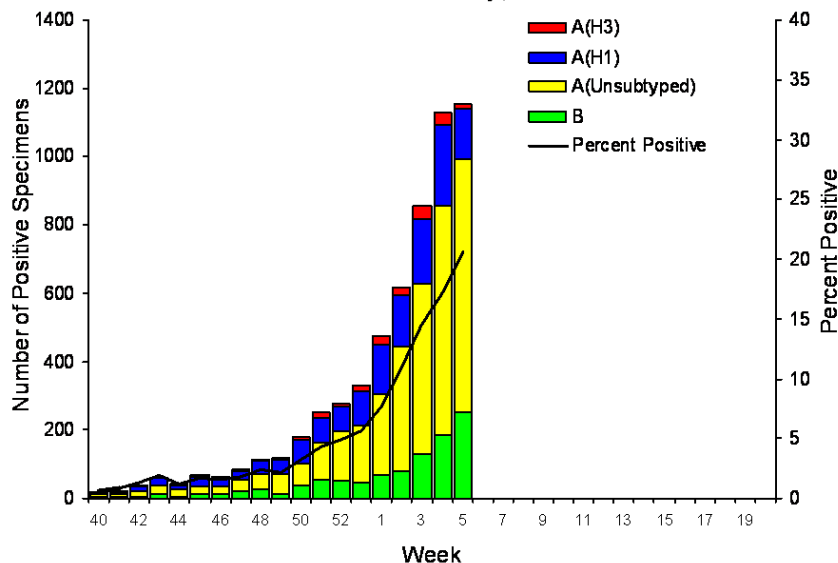
Influenza B viruses currently circulating can be divided into two distinct lineages represented by the B/Yamagata/16/88 and B/Victoria/02/87 viruses. Twenty-three influenza B viruses tested belong to the B/Yamagata lineage and are related to the vaccine strain (B/Florida/04/2006). The remaining 55 viruses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

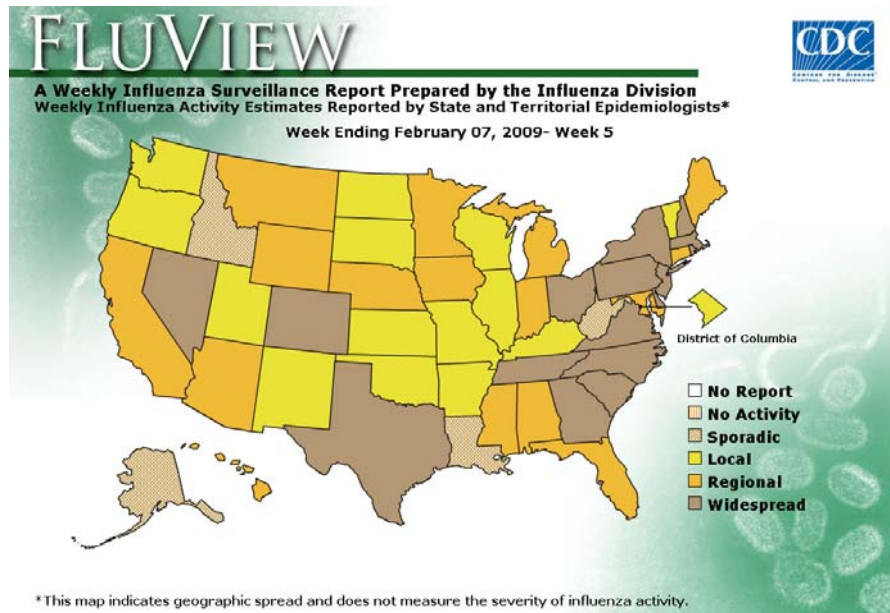
Since October 1, 2008, 240 influenza A (H1N1), 49 influenza A (H3N2), and 105 influenza B viruses have been tested for resistance to the neuraminidase inhibitors (oseltamivir and zanamivir). Two hundred forty influenza A (H1N1) and 49 influenza A (H3N2) viruses have been tested for resistance to the 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)	240	236 (98.3%)	0 (0)	240	2 (0.8%)
Influenza A (H3N2)	49	0 (0)	0 (0)	49	49 (100%)
Influenza B	105	0 (0)	0 (0)	N/A*	N/A*

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

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





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

International (WHO, February 18): Recommended composition of influenza virus vaccines for use in the 2009-2010 northern hemisphere influenza season: It is recommended that vaccines for use in the 2009-2010 influenza season (northern hemisphere winter) contain the following:

- an A/Brisbane/59/2007 (H1N1)-like virus;
- an A/Brisbane/10/2007 (H3N2)-like virus;
- a B/Brisbane/60/2008-like virus.

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 14, 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 18): 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 32-year old man from Kim Son district, Ninh Binh province. He developed symptoms on 5 February 2009 and was hospitalized on 13 February 2009. He is currently in a serious condition. The case is known to have had recent contact with sick poultry prior to the onset of his illness.

Further investigations are currently underway. Control measures have been implemented and close contacts are being identified and monitored. Of the 109 cases confirmed to date in Viet Nam, 52 have been fatal.

International, Poultry (Xinhua News Agency, February 12): Hundreds of poultry died from outbreaks of bird flu or Avian Influenza (AI) in four sub districts in Bantul District, Yogyakarta Province, Indonesia, the national Antara news Agency reported on Thursday.

"The districts which have been hit by AI virus are Bambanglipuro, Jetis, Piyungan and Bantul," said Sri Budoyo, an official of the Bantul district marine, fishery and animal husbandry.

He said that rapid tests conducted on some dead poultry positively indicated that the animals had died because of the AI virus. "The results of the rapid tests on some dead poultry showed that they had AI. Therefore, we urged local people to be on alert and take anticipative steps," he said, adding that the current incessant rain spreading virus faster.

There were 71 bird flu cases in 2007 and 32 cases in 2008 in Bantul and the virus has killed 115 people in the country.

International, Poultry (BBC, February 18): Bird flu has recurred in the Mekong Delta province of Soc Trang, resulting in more than 6,500 culled chicken and ducks. The virus was detected among flocks in the two communes of Vien Binh and Tai Van in My Xuyen district on February 16.

Samples taken from sick ducks at Ly Sa Rinh' breeding farm in Vien Binh tested positive for the H5N1 virus. The virus was also found among a household of more than 760 poultry in Tai Van commune.

It's worth noting that these two communes have a large number of free-range ducks. Hence, it is difficult for the local veterinary agencies to keep the virus under control there.

The local authorities, along with the relevant agencies, are intensifying urgent measures to boost the dissemination of information among the public and help local farmers to prevent the spread of the deadly virus. They are closely monitoring the culling of sick poultry and trying to detect outbreaks of bird flu as early as possible.

International, Poultry (OIE, February 19): In a report submitted to OIE, Romania reported an outbreak of low pathogenic H5N2 avian influenza in poultry. To see the complete report, visit http://www.oie.int/wahis/reports/en_imm_0000007803_20090219_120011.pdf.

Michigan Wild Bird Surveillance (USDA, as of February 19): 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.

H5N1 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.

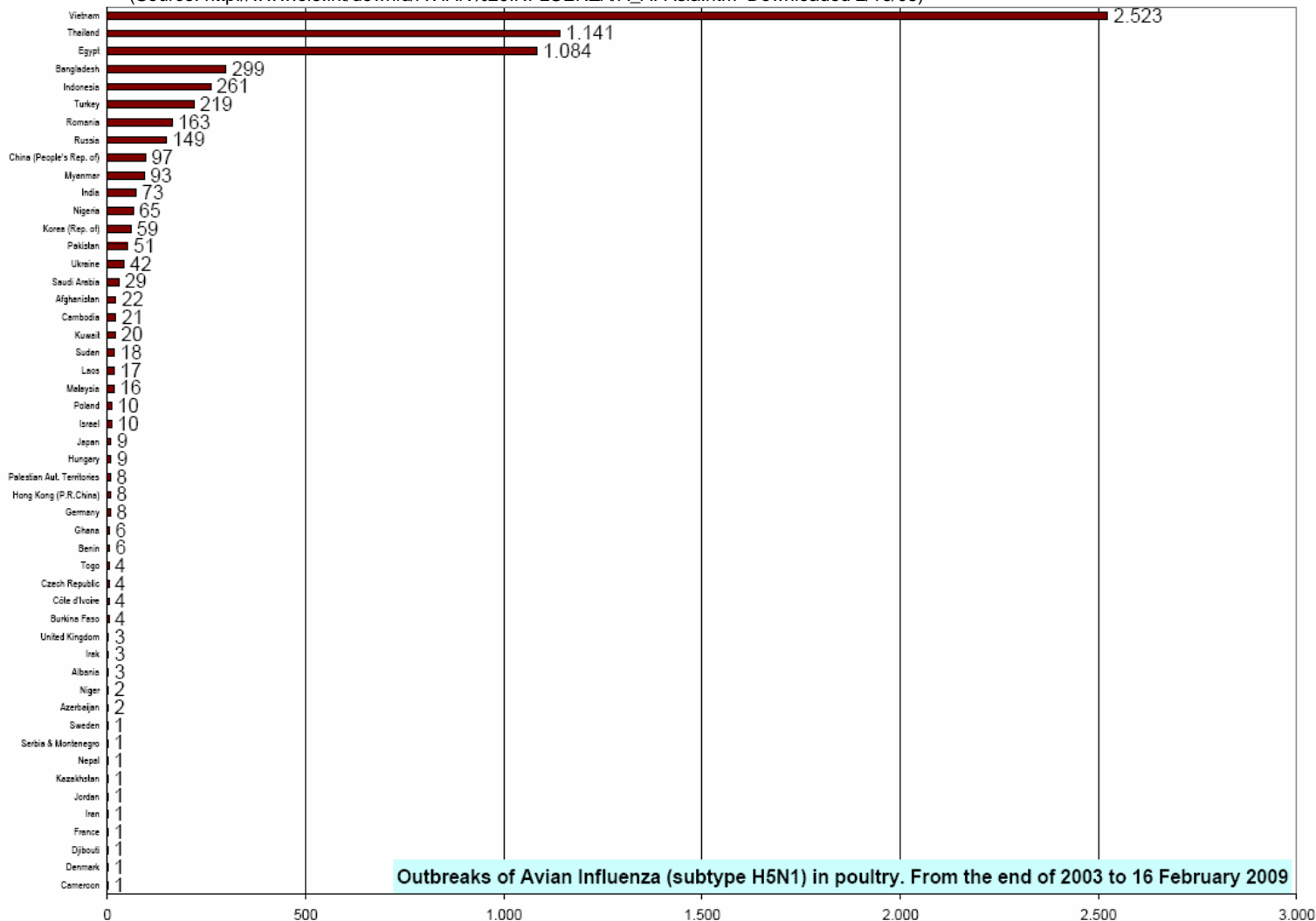
Contributors

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Table 1. H5N1 Influenza in Poultry (Outbreaks up to February 16, 2008)

(Source: http://www.oie.int/downld/AVIAN%20INFLUENZA/A_AI-Asia.htm Downloaded 2/16/08)



Outbreaks of Avian Influenza (subtype H5N1) in poultry. From the end of 2003 to 16 February 2009

Table 2. H5N1 Influenza in Humans (Cases up to February 18, 2008)

(http://www.who.int/csr/disease/avian_influenza/country/cases_table_2009_02_18/en/index.html Downloaded 2/18/2009)

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	2	0	109	52
Total	4	4	46	32	98	43	115	79	88	59	44	33	13	4	408	254