MI FluFocus

Influenza Surveillance and Avian Influenza Update

Bureau of Epidemiology
Bureau of Laboratories

Michigan Department of Community Health
MDCH
Jennifer M. Granholm, Governor
Janet Olszewski, Director

Editor: Susan Vagasky, DVM
VagaskyS@Michigan.gov

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New updates in this issue:

- **Michigan Surveillance:** Overall, activity is steady to slightly increasing and at a regional level.
- **National Surveillance:** Activity remained steady and elevated, with 44 states at regional or widespread.
- **Avian Influenza:** The first human case in Laos, reported last week, becomes the country's first fatality.

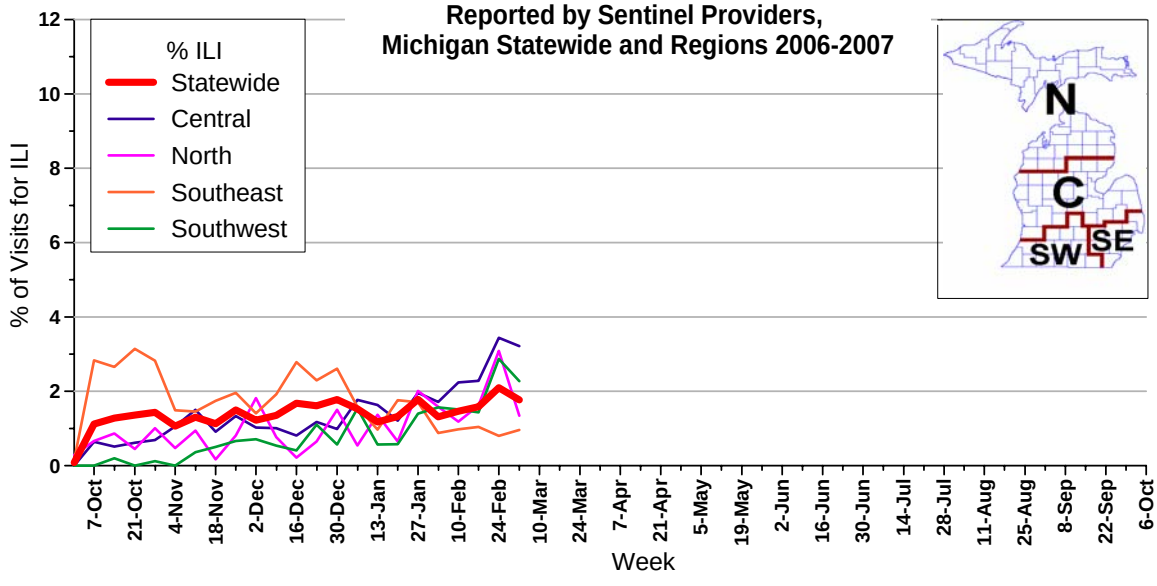
Michigan Disease Surveillance System: The last week has continued to see a slight increase in individual influenza reports to the local health departments, but a decrease in aggregate flu-like illness reports. This decrease in aggregate cases can be attributed to recent known irregularities in school reports and should be interpreted as steady or a slight increase in the number of reports from last week. A continued increasing trend is not unexpected, as reporting levels are consistent with this time last year and the peak that occurred in March 2006.

Emergency Department Surveillance: Emergency department visits due to constitutional complaints remained steady this past week, while respiratory complaints increased slightly. The levels reported are consistent with levels reported this time last year. Five constitutional alerts in Regions 2S(1), 5(1), 7(1) and 8(2) and one respiratory alert in Region 2N were generated last week.

Over-the-Counter Product Surveillance: OTC sales reflected the slow increase in activity last week. Sales were steady or slightly increased, except for pediatric cold relief liquids and children's electrolytes, which slightly decreased. Levels are comparable to those seen at this time last year, except for adult and pediatric cold relief liquid, which are holding 1-2% below their percentage of total sales for this time last year.

Sentinel Surveillance (**as of March 8, 2007**): During the week ending March 3, 2007, the proportion of visits due to influenza-like illness (ILI) in Michigan decreased slightly overall to 1.8% of all visits, representing 138 cases of ILI out of 7,792 total patient visits; thirty-one sentinels provided data for this report. Activity remains elevated in the Central and Southwest surveillance regions but decreased slightly this week to 3.2% and 2.3%, respectively. Low levels of activity were reported in the North, which decreased to 1.4%, and the Southeast, which remained unchanged from last week at 1.0%. 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 2006-2007



As part of pandemic influenza preparedness, CDC and MDCH highly encourage and recommend 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 March 8): For the 2006-2007 influenza season, there have been 109 culture-confirmed cases from the MDCH Lab:

- 64 A:H1N1 (Southwest (20), Southeast (20), Central (14), North (10))
- 14 A:H3N2 (North (7), Southwest (3), Southeast (2), Central (2))
- 31 B (Central (11), Southeast (9), Southwest (6), North (5))

All influenza B cultures have been B/Malaysia, except for one B/Shanghai from the Southeast region. Overall MDCH submission activity decreased slightly during the past week. A larger proportion of positive samples were received from the Central and North regions this past week. Sentinel laboratories in the North reported continued small but steady increases in the number of positive results, while the Southwest and North are reporting steady activity, and the Southeast continues to hold at low and static to decreasing levels. Low levels of parainfluenza, adenovirus and respiratory syncytial virus are being reported as well.

***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.

Influenza-Associated Pediatric Mortality (as of March 8): For the 2006-2007 season, there are no confirmed reports of influenza-related pediatric mortality in Michigan. MDCH is currently investigating a possible pediatric death due to influenza from the Southeast region.

***Reminder: The CDC has asked all states to continue to collect information on any pediatric death associated with influenza infection. This includes not only any death in a child less than 18 years of age resulting from a clinically compatible illness confirmed to be influenza by an appropriate laboratory or rapid diagnostic test, but also unexplained death with evidence of an infectious process in a child. Refer to http://www.michigan.gov/documents/fluletter_107562_7.pdf for the complete protocol. It is important to immediately call or fax information to MDCH to ensure that appropriate clinical specimens can be obtained.

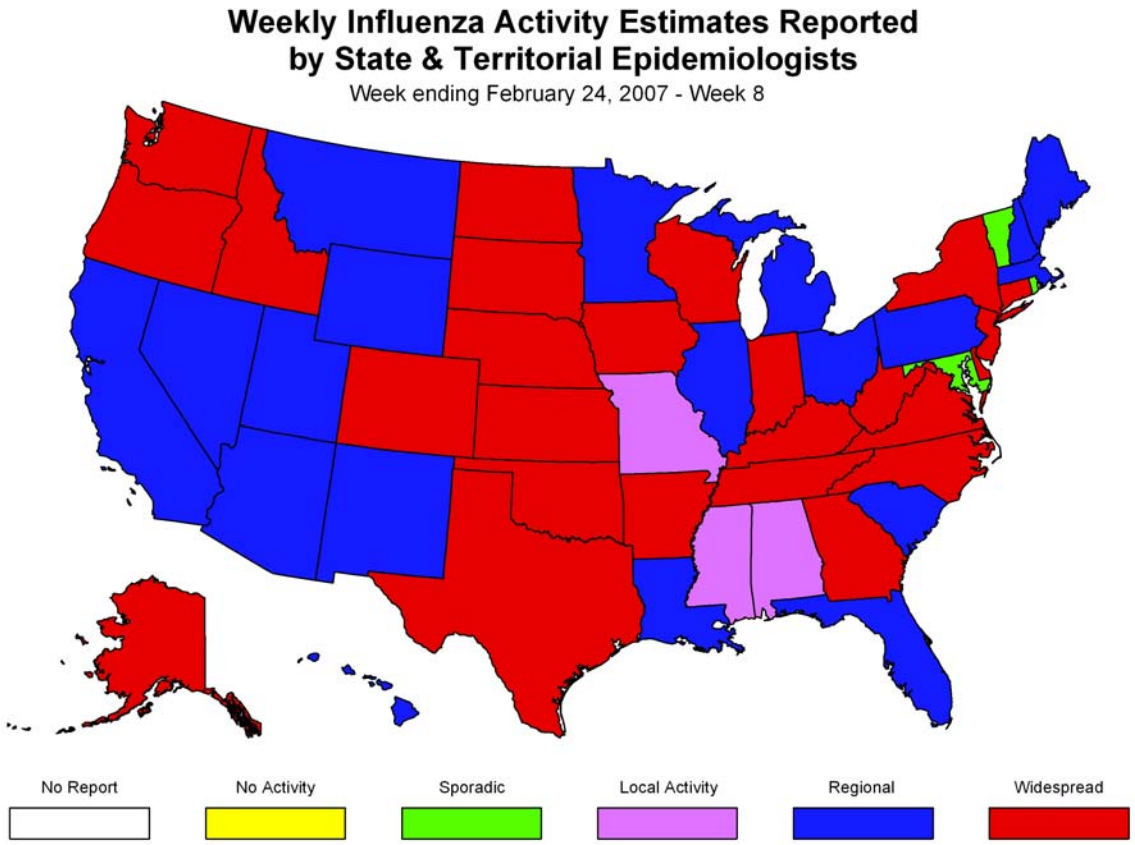
Congregate Settings Outbreaks (as of March 8): There has been one report of an influenza outbreak to MDCH for the 2006-2007 influenza season.

National (CDC, March 2): During week 8 (February 18 - February 24, 2007), influenza activity remained elevated in the United States. During week 8, WHO and NREVSS laboratories reported 4,383 specimens tested for influenza viruses, 1,044 (24.8%) of which were positive: 97 influenza A (H1) viruses, 25 influenza A (H3) viruses, 727 influenza A viruses that were not subtyped, and 195 influenza B viruses. ILI data was above baseline for the tenth week this season. Twenty-five states reported widespread influenza activity; 19 states and New York City reported regional influenza activity; three states and the District of Columbia reported local influenza activity; and three states reported sporadic influenza activity. The reporting of widespread or regional influenza activity increased from 38 states for week 7 to 44 states for week 8. The percent of deaths due to pneumonia and influenza remained below baseline level.

CDC has antigenically characterized 246 influenza viruses [148 influenza A (H1), 20 influenza A (H3) viruses, and 78 influenza B viruses] collected by U.S. laboratories since October 1, 2006. One hundred forty-one (95%) of the 148 influenza A (H1) viruses characterized were similar to A/New Caledonia/20/99-like, which is the influenza A (H1) component of the 2006-07 influenza vaccine. Seven (5%) of the 141 viruses showed somewhat reduced titers with antisera produced against A/New Caledonia/20/99 and are similar to A/Solomon Islands/3/2006-like (WHO-recommended A (H1) component of the 2007-2008 vaccine). Eleven (55%) of the 20 A (H3) viruses were characterized as A/Wisconsin/67/2005-like, which is the influenza A (H3) component of the 2006-07 influenza vaccine. Nine (45%) of the 20 viruses showed somewhat reduced titers with antisera produced against A/Wisconsin/67/2005. Fifty-two (67%) of the 78 influenza B viruses characterized belong to the B/Victoria lineage of viruses. Twenty-nine (56%) of these 52 viruses were similar to B/Ohio/01/2005, the B component of the 2006-07 influenza vaccine. Twenty-three (44%) of these 52 viruses showed somewhat reduced titers with antisera produced against B/Ohio/01/2005. Twenty-six (33%) of the 78 influenza B viruses characterized belong to the B/Yamagata lineage of viruses.

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

February 4 – February 24, 2007 (specimens testing positive) **(Michigan is in the East North Central Region)**	
>20% positive	**10-20% positive**
East North Central (42.1%)	New England (16.8%)
West North Central (28.8%)	Mid Atlantic (13.5%)
South Atlantic (20.8%)	Mountain (18.0%)
East South Central (38.9%)	Pacific (19.7%)
West South Central (37.3%)	



International (WHO, as of February 28): Overall influenza activity in the northern hemisphere increased during weeks 1–7 but remained moderate in general. Influenza A(H3N2) viruses predominated in many European countries and in some Asian countries/areas, where this season's activity started to increase in early January 2007. Influenza A(H1N1) viruses circulated in the United States and in a few eastern European countries. Influenza B viruses circulated at low levels.

For influenza activity from individual countries, please visit the full WHO article "Seasonal Influenza Activity in the World, 2007" at http://www.who.int/csr/disease/influenza/update/en/.

MDCH reported **REGIONAL ACTIVITY** to the CDC for this past week ending March 3, 2007.

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 8): The Ministry of Health in Lao People's Democratic Republic has confirmed the country's first death from H5N1 avian influenza. The 15-year-old female from Vientiane, whose infection was announced February 27th, died on March 7th after being hospitalized in neighboring Thailand.

International, Poultry (Reuters Alertnet, March 3): Kuwait said on Saturday [Feb 3, 2007] it had found 2 new cases of the deadly H5N1 strain of bird flu in chickens, raising to 48 the total number of infected birds in the Gulf Arab country this year. "The new cases were traced to the bird market in the al-Rai area," Health Ministry official Ahmed al-Shatti told Reuters.

He said 121 handlers and their families had tested negative for the disease, while thousands of birds have been culled in a campaign by the government to prevent the disease's spread that had led to a ban on live bird imports. The bird market and Kuwait's zoo are shut while poultry shops in residential areas are being closed for 3 months.

Kuwait confirmed 39 cases of bird flu last month [February 2007], but said 20 of them were found in falcons at the zoo and a farm in the south of the country. The rest did not belong to poultry farms but were domestic birds caged in private yards. It last reported a case of bird flu in a flamingo in 2005.

International, Poultry and Wild Birds (Reuters Alertnet, March 6): China has suffered an outbreak of H5N1 avian flu among poultry in remote Tibet, while the virus also struck down thousands of wild birds in the region, state media and animal health monitors reported late on Tuesday [March 6 2007].

In a report submitted to the World Organization for Animal Health (OIE), China's chief veterinary officer, Jia Youling, said the poultry died of the H5N1 strain of bird flu, which can be deadly to humans who have close contact with infected birds. Jia reported that 680 fowl died in the outbreak in Chengguan Village near Lhasa, the capital of Tibet, and nearly 7000 other birds there were culled, according to the OIE web-site.

The poultry died on March 1, 2007, the official Xinhua news agency reported. It did not specify what kinds of birds were infected. The government has closed the market and is also monitoring the health of wild birds, it added. "Specialists believe the virus was introduced by wild birds migrating from east Africa to west Asia, as no outbreaks of the disease had been reported in the source areas of the poultry," Xinhua said.

Jia also reported 3 separate outbreaks of H5N1 among wild birds in Tibet, including one that killed 28 migratory birds near Lhasa and 2 others that killed 2579 and 57 wild birds elsewhere in the region. The wild species infected included bar-headed geese, crows and hawks, according to the OIE. There were also 2 outbreaks that killed 984 wild birds in Qinghai province, which neighbors Tibet, as well as 2 deaths among wild birds in northeast China's Liaoning province, Jia reported. His report gave no dates for the wild bird deaths.

Some scientists believe many outbreaks of bird flu in China's vast poultry sector have gone unreported until human infections in effected places have alerted health officials to the presence of the virus.

A woman farmer in China's southeastern province of Fujian has been infected with the H5N1 form of bird flu, China confirmed last week, the 1st human case in the country in about 7 weeks. World Health Organization officials have gone to the site of that case to investigate.
The Ministry of Agriculture said an investigation team it sent down to the woman's village found no trace of the H5N1 virus in poultry samples.

China has now reported a total of 23 human cases of bird flu, including 14 deaths, since 2003, and, with the largest poultry population and millions of backyard birds roaming free, it is seen as central to the fight

against the virus. China will vaccinate billions of domestic poultry over the next few months to guard against an outbreak of bird flu this spring, when the virus is at its most contagious, state media reported on Monday [March 5 2007].

International, Poultry (Reuters Alertnet, March 7): Bird flu has killed more than 1000 chickens at 2 farms on the outskirts of Hanoi, the country's animal health authority said on Wednesday [March 7 2007]. Health workers slaughtered scores of chickens at the farms in Dong Anh district after tests confirmed that the H5N1 virus had killed a total of 1150 birds, the Animal Health Department said in its daily report. "The Hanoi animal health department has coordinated with the local authority to destroy the remaining poultry, disinfect the outbreak area and closely monitor poultry and humans," the report said.

Viet Nam has had no human cases of bird flu since November 2005, but the virus, which first arrived in late 2003, returned to poultry in the south late last year [2006].

More infections were detected in ducks in the southern province of Vinh Long and in chickens in the northern provinces of Hai Duong and Ha Tay in the past 3 weeks. On February 27, 2007, all 550 chickens were slaughtered on a farm in Ha Tay province, the largest poultry supplier to Hanoi, officials said. In late February, 10,500 infected chickens were killed in Hai Duong province, east of Hanoi.

Agriculture Minister Cao Duc Phat said last week the H5N1 virus existed throughout Viet Nam, even though poultry vaccination had helped prevent its spread. Viet Nam is expected to start its next phase of vaccinating poultry in the 2nd half of March 2007 and will allow the resumption of raising and hatching waterfowl from March 15, 2007.

Michigan Wild Bird Surveillance (USDA, March 6): An American Black Duck from Hyde Co., NC, which had preliminarily tested positive for the low pathogenicity H5 and N1 antigens, instead tested culture-positive for an H4N1 avian influenza virus.

According to the National HPAI Early Detection Data System website, available at http://wildlifedisease.nbii.gov/ai/, Michigan has results for a total of 1809 samples, from both wild birds and the environment, submitted for testing as of February 27th. 232 of these were live-captured birds, 605 were hunter-killed, 174 were sentinel animals, 591 were dead birds that were submitted for testing, and 207 were environmental samples. HPAI subtype H5N1 has not been recovered from any Michigan samples tested to date, or from the 107,866 birds or environmental samples tested nationwide.

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

MDCH Bureau of Epidemiology - Sally Bidol, MPH; Edward Hartwick, MS; Elizabeth Lewis, MHS; Rachel Potter, DVM, MS

MDCH Bureau of Laboratories – Patricia Clark, MPH

Table 1. H5N1 Influenza in Poultry (Outbreaks up to March 2, 2007)
(Source: http://www.oie.int/downld/AVIAN%20INFLUENZA/A_AI-Asia.htm Downloaded 3/2/2007)

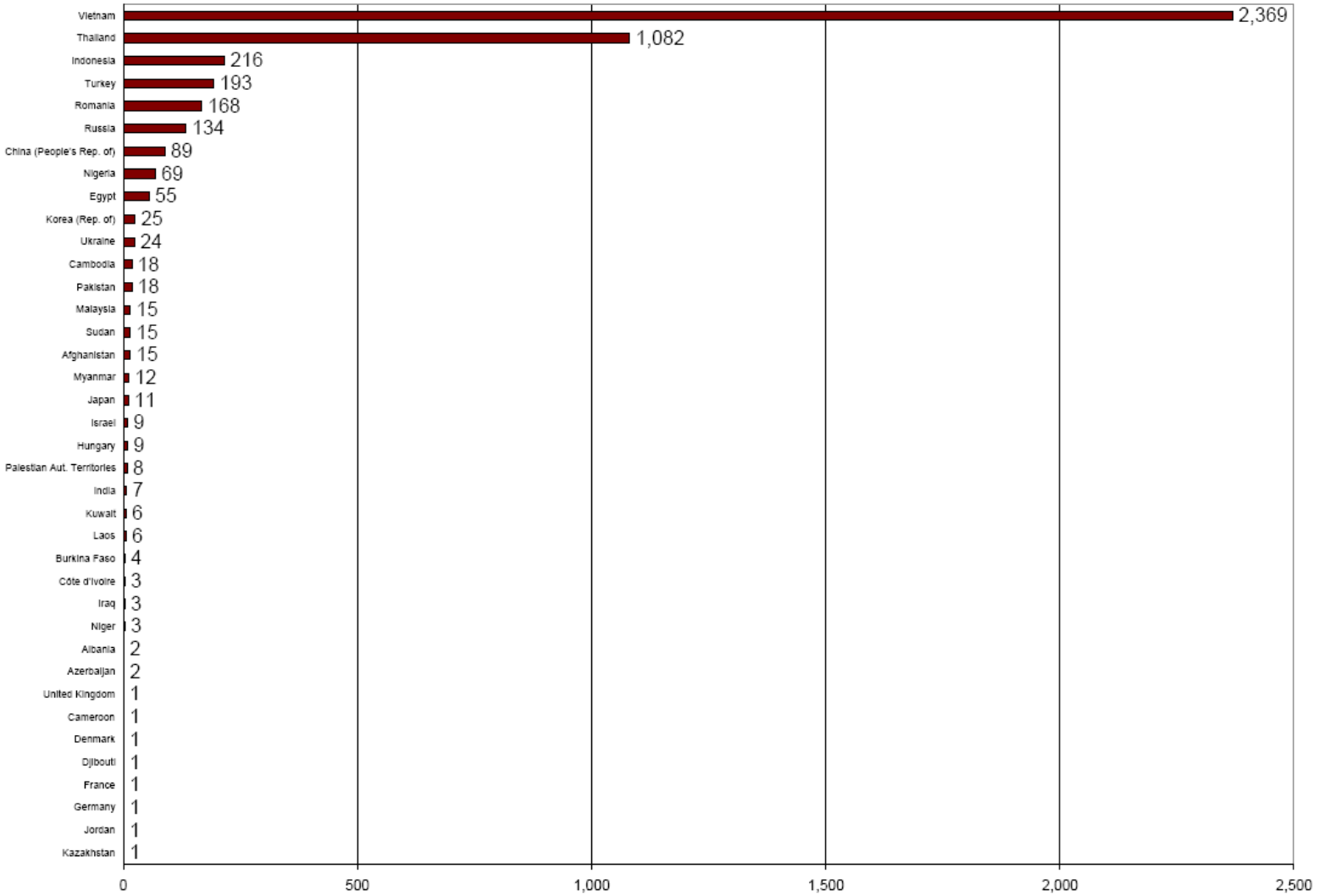


Table 2. H5N1 Influenza in Humans (Cases up to March 8, 2007)
(http://www.who.int/entity/csr/disease/avian_influenza/country/cases_table_2007_03_08/en/index.html Downloaded 3/8/2007)
Cumulative number of lab-confirmed human cases reported to WHO. Total number of cases includes deaths.

Country	2003		2004		2005		2006		2007		Total	
	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths
Azerbaijan	0	0	0	0	0	0	8	5	0	0	8	5
Cambodia	0	0	0	0	4	4	2	2	0	0	6	6
China	1	1	0	0	8	5	13	8	1	0	23	14
Djibouti	0	0	0	0	0	0	1	0	0	0	1	0
Egypt	0	0	0	0	0	0	18	10	5	3	23	13
Indonesia	0	0	0	0	19	12	56	46	6	5	81	63
Iraq	0	0	0	0	0	0	3	2	0	0	3	2
Lao PDR	0	0	0	0	0	0	0	0	1	1	1	1
Nigeria	0	0	0	0	0	0	0	0	1	1	1	1
Thailand	0	0	17	12	5	2	3	3	0	0	25	17
Turkey	0	0	0	0	0	0	12	4	0	0	12	4
Viet Nam	3	3	29	20	61	19	0	0	0	0	93	42
Total	4	4	46	32	97	42	116	80	14	9	277	168