



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:

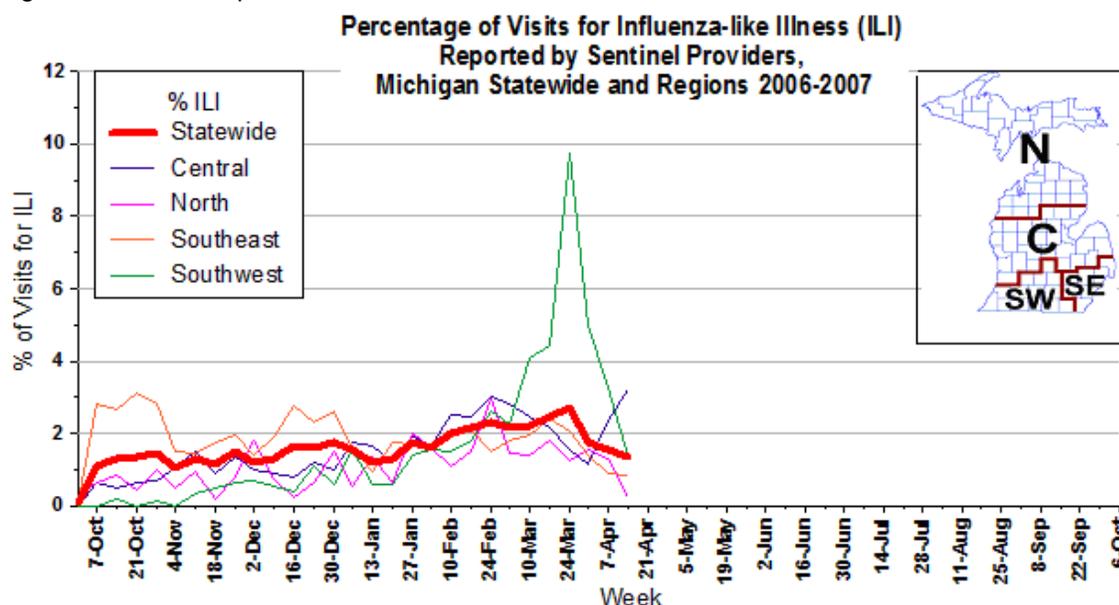
- **Michigan Surveillance:** Influenza activity is decreasing, yet some indicators in the Central and Southeast are still elevated.
- **National Surveillance:** Activity continues to decline; Influenza A(H3N2) and B more prominent lately.
- **Avian Influenza:** FDA approves first U.S. H5N1 avian influenza vaccine.

Michigan Disease Surveillance System: The last week saw a decrease in aggregate flu-like illness reports where individual influenza reports held steady at last week's level. This continued decline in the number of reports across multiple surveillance systems might suggest that the flu season is winding down. Individual reports are higher than what was seen this time last year, where aggregate reports are comparable to last year's levels.

Emergency Department Surveillance: Emergency department visits due to constitutional complaints saw a second week of notable decline. Respiratory complaints decreased as well, but at a less aggressive rate. Reported levels are consistent with levels from this time last year. Three constitutional alerts in Regions 1(1) and 6(2) and three respiratory alerts in Regions 2N(1), 3(1), and 7(1) were generated last week.

Over-the-Counter Product Surveillance: OTC product sales activity generally remained steady last week. Chest rub and adult liquid cold relief sales slight increased while pediatric liquid cold relief and children's electrolytes slightly decreased, all of which were very minor changes. The indicators levels are comparable to those seen at this time last year, except for the adult and pediatric cold relief liquid, which seem to be holding 1-2% below its percentage of total sales for this time last year.

Sentinel Surveillance (as of April 19, 2007): During the week ending April 14, 2007, the proportion of visits due to influenza-like illness (ILI) in Michigan remained relatively unchanged overall from last week at 1.4% of all visits, representing 84 cases of ILI out of 6,116 total patient visits; twenty-six sentinels provided data for this report. An increase in ILI has been reported in the Central region and is currently elevated at 3.2%. Activity remains at a low level in the Southeast (0.8%) and continued decreases were reported in the proportion of visits due to ILI in the Southwest (1.4%) and North (0.3%) regions. Note that these rates may change as additional reports are received.



As part of pandemic influenza preparedness, CDC and MDCH highly 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 April 19): For the 2006-2007 influenza season, there have been 150 culture-confirmed cases from the MDCH Lab:

- 69 A:H1N1 (Southeast (22), Southwest (21), Central (16), North (10))
- 30 A:H3N2 (North (12), Southeast (12), Southwest (3), Central (3))
- 51 B (Central (17), Southeast (17), Southwest (12), North (5))

All influenza B cultures have been B/Malaysia, except for three B/Shanghai from the Southeast region. Submissions to MDCH BOL are light.

Sentinels labs across the state are reporting a decrease in the number of positive tests, with the exception of one Southeast lab that is still reporting increased numbers of both A and B positives. Preliminarily, the majority of sentinel labs appeared to have peaked in the weeks ending March 3rd or March 10th. 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 April 19): For the 2006-2007 season, there are no confirmed reports of influenza-related pediatric mortality in Michigan. MDCH and CDC investigated a possible pediatric death due to influenza from the Southeast region, but results were inconclusive.

***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 April 19): There has been one report of an influenza A outbreak from a Central region extended care facility for the 2006-2007 influenza season. Investigations for two possible facility outbreaks, one each from the Southwest and Central regions, were unable to confirm influenza as the cause of the outbreak.

International, Research (Reuters, April 18): Influenza can trigger deadly heart attacks, researchers said on Wednesday in a study that supports what experts have long believed — flu can kill people even if they do not die directly from the flu. Their report shows that the seasonal virus can worsen heart disease and that deaths from heart attacks and heart disease are far more common during flu season. This can add up to 90,000 extra deaths a year in the United States alone, said Dr. Mohammad Madjid of the University of Texas-Houston, who led the study.

Writing in the European Heart Journal, the researchers said their findings add to a growing list of reasons why people should get annual flu shots. They also said people with heart disease should stick to their medications religiously. “Our research has shown that influenza epidemics are associated with a rise in coronary deaths,” Madjid said in a statement. “This calls for more intensive efforts to increase the vaccination rate in people at risk of coronary heart disease. “This may be especially important in an influenza pandemic when we would expect to see high mortality among the elderly and those suffering from heart problems or who have multiple coronary risk factors,” he said.

Flu viruses change every year and several are usually circulating in any given season, making the risk of flu high for most people. “Between 10 and 20 percent of people catch flu every year and I have estimated that we can prevent up to 90,000 coronary deaths a year in the (United States) if every high-risk patient received an annual flu vaccination,” Madjid said. Madjid and colleagues at the Influenza Research Institute in St. Petersburg, Russia, studied autopsy reports on people who died from heart disease in that city from 1993 to 2000. “This was a population where only a small minority were receiving flu vaccines or statin drugs, so this enabled us to see what happened naturally in the absence of these medicines,” Madjid said.

International (WHO, as of March 29): Overall influenza activity in the northern hemisphere remained moderate in weeks 8–11. In North America, influenza activity declined in general, while in Europe and some Asian countries and areas, widespread activity continued, with influenza A(H3N2) viruses predominating. 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 **LOCAL ACTIVITY** to the CDC for this past week ending April 14, 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, Poultry (Reuters, April 16): Bird flu has spread to two more farms in Bangladesh despite efforts to contain the spread of the disease, fisheries and livestock ministry officials said on Monday. "A farm was found to be infected at western Jessore district while the other was at Savar near Dhaka, where the avian influenza was first detected last month," a ministry spokesman said. Jessore district is adjacent to West Bengal state of India, where bird flu has also been identified.

So far 79,000 chickens have been culled on 32 farms in eight districts since the detection of the H5N1 virus on six farms at Savar on March 22. The government said on Sunday it would pay 70 taka (\$1.0) in compensation for each chicken culled. Officials said the virus was under control. "Had it not been controlled the virus would have infected all the districts like a wildfire," said Khalilur Rahman Siddiqui, a senior ministry official.

No humans have tested positive for the disease in densely populated Bangladesh. The virus is known to have infected nearly 300 people in 12 countries since 2003, killing more than half of them. Human cases of bird flu have generally been linked to contact with infected poultry. Health experts fear the virus may mutate into a form that passes easily from human to human, causing a pandemic that could affect millions.

Bangladesh has 125,000 small and large poultry firms producing 250 million broilers and six billion eggs annually. About four million Bangladeshis are directly or indirectly associated with poultry farming.

National, Vaccine Development (FDA, April 17): The U.S. Food and Drug Administration (FDA) today announced the first approval in the United States of a vaccine for humans against the H5N1 influenza virus, commonly known as avian or bird flu.

The vaccine could be used in the event the current H5N1 avian virus were to develop the capability to efficiently spread from human to human, resulting in the rapid spread of the disease across the globe. Should such an influenza pandemic emerge, the vaccine may provide early limited protection in the months before a vaccine tailored to the pandemic strain of the virus could be developed and produced.

"The threat of an influenza pandemic is, at present, one of the most significant public health issues our nation and world faces," said Andrew C. von Eschenbach, M.D., Commissioner of Food and Drugs. "The approval of this vaccine is an important step forward in our protection against a pandemic."

The H5N1 virus is one version of the influenza A virus commonly found in birds. Unlike seasonal influenza, where infection ranges from mild to serious symptoms in most people, the disease caused by H5N1 is far more severe and happens quickly, with pneumonia and multi-organ failure commonly seen.

While there have been no reported human cases of H5N1 infection in the United States, almost 300 people worldwide have been infected with this virus since 2003 and more than half of them have died. To date, H5N1 influenza has remained primarily an animal disease but should the virus acquire the ability for

sustained transmission among humans, people will have little immunity to this virus and the potential for an influenza pandemic would have grave consequences for global public health.

"The timing and severity of an influenza pandemic is uncertain, but the danger remains very real," said Jesse L. Goodman, M.D., M.P.H., Director of FDA's Center for Biologics Evaluation and Research. "We are working closely with other government agencies, global partners and the vaccine industry to facilitate the development, licensure and availability of needed supplies of safe and effective vaccines to protect against the pandemic threat."

The vaccine was obtained from a human strain and is intended for immunizing people 18 through 64 years of age who could be at increased risk of exposure to the H5N1 influenza virus contained in the vaccine. H5N1 influenza vaccine immunization consists of two intramuscular injections, given approximately one month apart. The manufacturer, sanofi pasteur Inc., will not sell the vaccine commercially. Instead, the vaccine has been purchased by the federal government for inclusion within the U.S. Strategic National Stockpile for distribution by public health officials if needed. The vaccine will be manufactured at sanofi pasteur's Swiftwater, Pa., facility.

A clinical study was conducted to collect safety information and information on recipient's immune responses and to determine the appropriate vaccine dose. A total of 103 healthy adults received a 90 microgram dose of the vaccine by injection followed by another 90 microgram dose 28 days later. In addition, there were approximately 300 healthy adults who received the vaccine at doses lower than 90 micrograms and a total of 48 who received a placebo injection.

The vaccine was generally well tolerated, with the most common side effects reported as pain at the injection site, headache, general ill feeling and muscle pain. The study showed that 45 percent of individuals who received the 90 microgram, two-dose regimen developed antibodies at a level that is expected to reduce the risk of getting influenza. Although the level of antibodies seen in the remaining individuals did not reach that level, current scientific information on other influenza vaccines suggests that less than optimal antibody levels may still have the potential to help reduce disease severity and influenza-related hospitalizations and deaths. Additional information on this H5N1 influenza vaccine is being collected on safety and effectiveness in other age groups and will be available to FDA in the near future.

With the support of FDA, the U.S. National Institutes of Health and other government agencies, sanofi pasteur and other manufacturers are working to develop a next generation of influenza vaccines for enhanced immune responses at lower doses, using technologies intended to boost the immune response. Meanwhile, the approval and availability of this vaccine will enhance national readiness and the nation's ability to protect those at increased risk of exposure.

The U.S. Strategic National Stockpile is maintained by the U.S. Centers for Disease Control and Prevention. It contains large quantities of medicine and medical supplies to protect the American public if there is a public health emergency, which can be delivered to any state in the United States within 12 hours. For more information on the government's preparedness efforts, visit: www.pandemicflu.gov.

Michigan Wild Bird Surveillance (USDA, April 19): According to the National HPAI Early Detection Data System website, available at <http://wildlifedisease.nbio.gov/ai/>, Michigan has results for a total of 2369 samples submitted for testing as of April 19th. 193 of these were live-captured birds, 518 were hunter-killed, 145 were sentinel animals, 507 were dead birds that were submitted for testing, and 1006 were environmental samples. HPAI subtype H5N1 has not been recovered from any Michigan samples tested to date, or from the 144,117 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

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Table 1. H5N1 Influenza in Poultry (Outbreaks up to April 13, 2007)

(Source: http://www.oie.int/downld/AVIAN%20INFLUENZA/A_AI-Asia.htm Downloaded 4/17/2007)

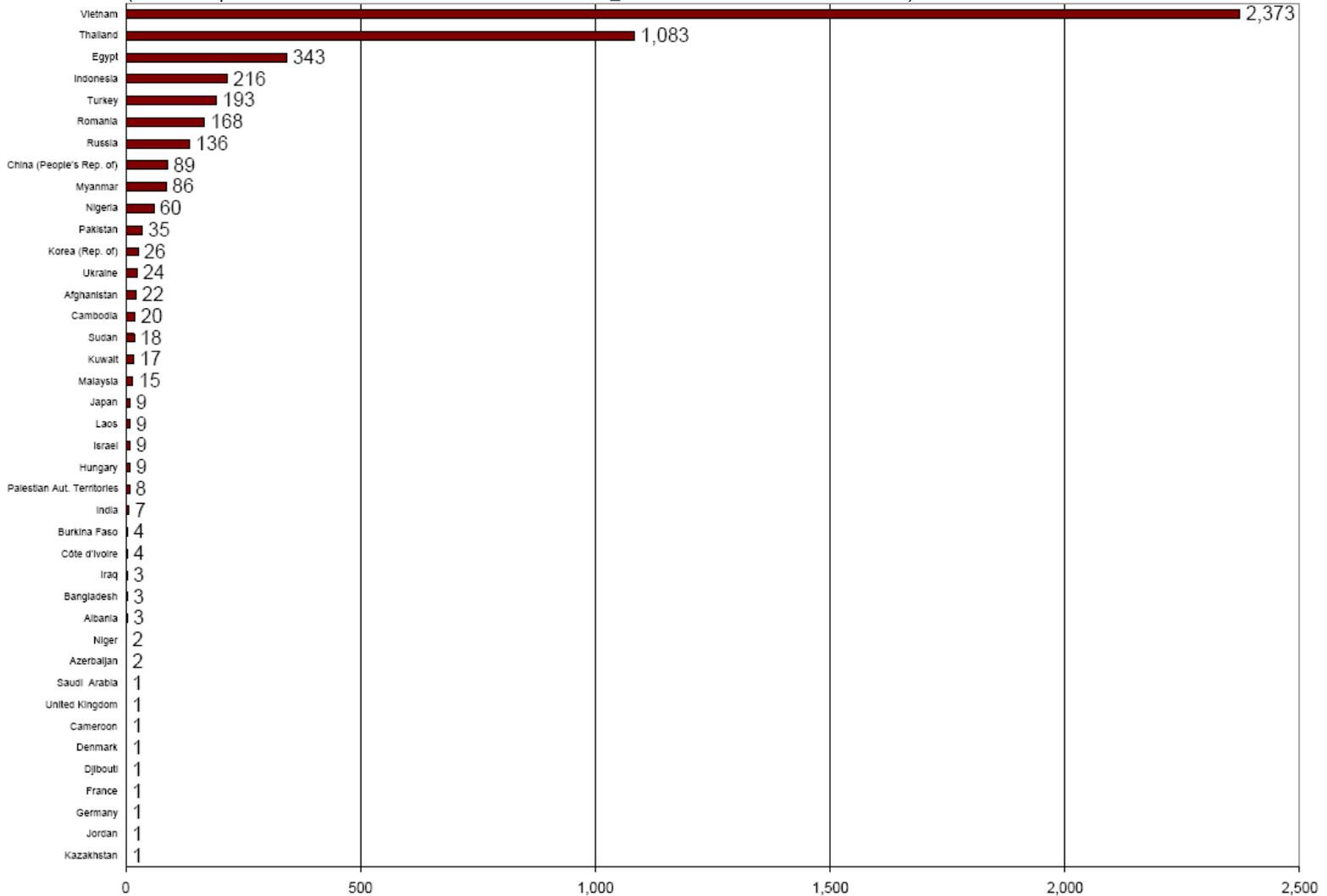


Table 2. H5N1 Influenza in Humans (Cases up to April 11, 2007)

(http://www.who.int/entity/csr/disease/avian_influenza/country/cases_table_2007_04_11/en/index.html Downloaded 4/11/2007)

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										
Azerbaijan	0	0	0	0	0	0	8	5	0	0	8	5
Cambodia	0	0	0	0	4	4	2	2	1	1	7	7
China	1	1	0	0	8	5	13	8	1	0	24	15
Djibouti	0	0	0	0	0	0	1	0	0	0	1	0
Egypt	0	0	0	0	0	0	18	10	16	4	34	14
Indonesia	0	0	0	0	20	13	55	45	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	2	2	2	2
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	98	43	115	79	28	14	291	172