



MI FluFocus

Influenza Surveillance and Avian Influenza Update

Bureau of Epidemiology
Bureau of Laboratories

Michigan Department
of Community Health



Jennifer M. Granholm, Governor
Janet Olszewski, Director

Editor: Susan Vagasky, DVM
VagaskyS@Michigan.gov

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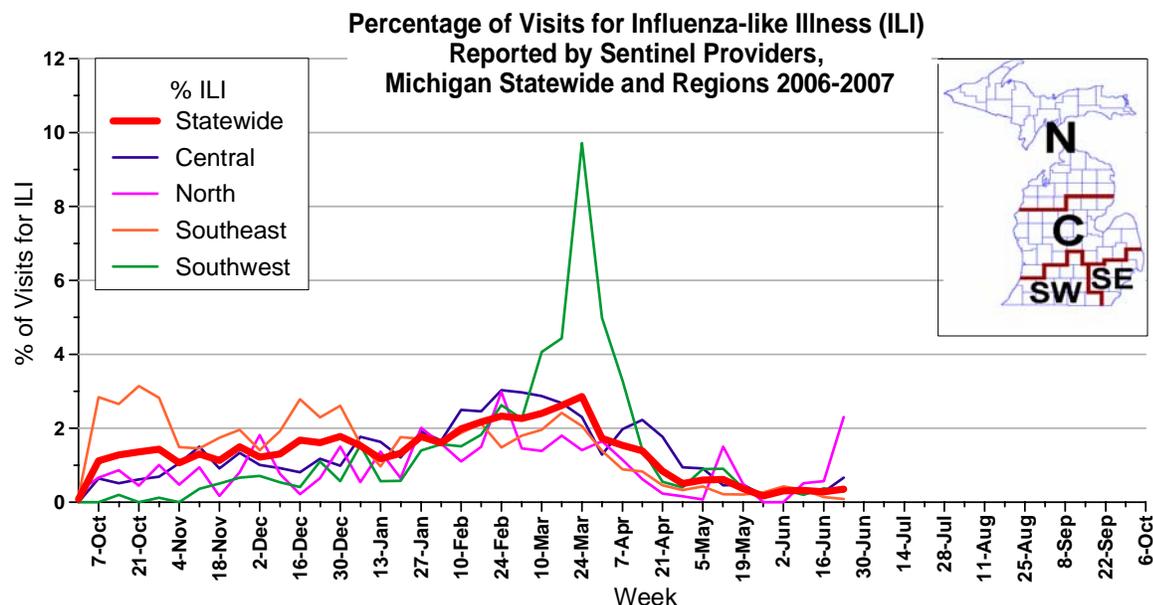
New updates in this issue:

- **Michigan Surveillance:** Influenza-like illness across the state is at baseline summer levels.
- **Avian Influenza:** New human cases of H5N1 in Indonesia and Egypt; first poultry outbreak reported in African nation of Togo.

Michigan Disease Surveillance System: The last week saw aggregate flu-like illness and individual influenza reports holding steady near the previous week's levels. These indicators are expected to continue to fluctuate at baseline levels until next fall.

Emergency Department Surveillance: Emergency department visits due to constitutional complaints remained steady and respiratory complaints decreased slightly this past week. Reported levels are consistent with levels from this time last year. Nine constitutional alerts in Regions 1(2), 3(3), 5(2) and 7(2) and two respiratory alerts in Regions 1(1) and 5(1) were generated last week.

Sentinel Surveillance (as of June 28): During the week ending June 23, 2007, the proportion of visits due to influenza-like illness (ILI) in Michigan remained at low a low level; 0.4% of all visits. This represents 13 cases of ILI out of 3686 total patient visits; fourteen sentinels provided data for this report. By surveillance region, the proportion of visits due to ILI was 0.7%, Central; 2.3%, North; 0.1%, Southeast; and 0.3%, Southwest. The increased proportion of visits due to ILI in the North surveillance region is due to a small increase in the number of visits at a single family practice and a small number of reports from that region overall. Note that these rates may change as additional reports are received.



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 June 28): For the 2006-2007 influenza season, there have been 157 culture-confirmed cases from the MDCH Lab:

- 69 A:H1N1 (Southeast (22), Southwest (21), Central (16), North (10))
- 34 A:H3N2 (North (12), Southeast (12), Central (7), Southwest (3))
- 54 B (Southeast (18), Central (17), Southwest (12), North (7))

All influenza B cultures have been B/Malaysia, except for six B/Shanghai results from the Southeast region.

***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 June 28): For the 2006-2007 season, there are no confirmed reports of influenza-related pediatric mortality in Michigan. MDCH and CDC are currently investigating a possible influenza-associated pediatric mortality in the Southeast region from March.

***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 June 28): An investigation of a mild respiratory disease outbreak in an extended care facility in the Central region has concluded; influenza was not isolated and no definitive cause of the outbreak was identified. There has been one report of an influenza A outbreak from a Central region extended care facility for the 2006-2007 influenza season.

National: For CDC weekly surveillance report archives, visit <http://www.cdc.gov/flu/weekly/fluactivity.htm>.

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/>.

Weekly reporting to the CDC has concluded for the 2006-2007 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, June 25): The Ministry of Health of Indonesia has announced a new case of human infection of H5N1 avian influenza. A 3-year-old female from Riau Province developed

symptoms on June 18 and has since recovered. Investigations into the source of her infection indicate exposure to sick and dead poultry. Of the 101 cases confirmed to date in Indonesia, 80 have been fatal.

International, Human (WHO, June 25): The Egyptian Ministry of Health and Population has confirmed a new human case of avian influenza A(H5N1) virus infection. The case has been confirmed by the Egyptian Central Public Health Laboratory and by the WHO H5 Reference Laboratory, US Naval Medical Research Unit No.3 (NAMRU-3).

The case is a 4 year old male from Qena Governorate. He developed symptoms on June 20 and was admitted to hospital on June 21. He is receiving treatment and is in a stable condition. Initial investigations into the source of his infection indicate exposure to dead poultry. Of the 37 cases confirmed to date in Egypt, 15 have been fatal.

International, Poultry (Reuters, June 21): Czech veterinarians started culling several thousand turkeys at a farm on Thursday after tests confirmed the country's first outbreak of a deadly form of bird flu in poultry.

Veterinary officials declared protected areas of up to 10 km in radius around the farm in Tisova, 150 km (94 miles) east of Prague, in which protective measures will be taken, including testing of animals and a ban on moving poultry. The State Veterinary Authority said test results released on Thursday confirmed an outbreak of the H5N1 bird flu type that is potentially deadly to humans.

"The farm has been sealed off and the flock is being liquidated," Farm Minister Petr Gandalovic said in a statement. "There certainly is no reason to panic, there is no danger to people if they stick to basic hygiene rules." Soldiers erected a station to disinfect vehicles, and workers at the farm wore overalls and face masks.

About 1,600 of some 6,000 turkeys at the farm had been already killed by the virus, the veterinary agency said. There are another 367,000 poultry in the 10 km (6 mile) zone around the affected farm, the veterinary agency said.

No turkeys from the farm have been distributed into the retail network, the news agency CTK said.

The Czechs found about a dozen cases of the H5N1 strain in swans last spring, but have never before recorded a case in poultry.

The H5N1 virus mainly affects birds, but experts fear it could change into a form easily transmitted from person to person and lead to a pandemic. So far, most human cases can be traced to direct or indirect contact with infected birds and hundreds of millions of birds have died or been culled.

Bird flu has been spreading through southeast Asia, killing two people in Vietnam this month, the first deaths there since 2005. Globally, the H5N1 virus has killed nearly 200 people out of over 300 known cases, according to the World Health Organization. None of the victims were from Europe. Hundreds of millions of birds have died or been slaughtered.

International, Poultry (Reuters, June 22): Tests have confirmed an outbreak of the deadly H5N1 bird flu virus at a poultry farm in the West African country of Togo, Agriculture Minister Yves Nagou said on Friday. Samples from the semi-industrial farm at Sigbehoue, about 45 km (28 miles) east of the capital Lome, had been sent for laboratory tests in neighboring Ghana after the sudden mass death of poultry at the site. "It is confirmed. The results from the laboratory in Accra have detected the H5N1 type of virus," Nagou told Reuters. Preliminary tests in Togo had already indicated the presence of H5N1.

Togo became the seventh West African country hit by the H5N1 virus after Ghana, Ivory Coast, Burkina Faso, Niger, Cameroon and Nigeria. The worst affected country in West Africa, Nigeria, reported sub-Saharan Africa's only confirmed human death from H5N1 early this year.

The farm in Sigbehoue, close to the border with Benin, received a consignment of chicks in February from Ghana, where the deadly strain of avian flu was detected in early May, the minister said. Ghana imposed an export ban on poultry last month. The farm has been sealed off and the remainder of its poultry culled and incinerated after about 2,000 chickens out of a total stock of 3,000 had died in two days, officials said.

A meeting of 14 francophone African countries in the Malian capital Bamako on Thursday agreed on a six-month roadmap for tackling the epidemic focused on the management of poultry.

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International, Tamiflu resistance [edited] (Bloomberg News, June 22): Roche Holding AG's Tamiflu, the antiviral drug stockpiled in the event of a pandemic, may be becoming a weaker weapon against bird flu in Indonesia, where the disease has killed the most people, a study showed. Laboratory tests on 6 samples of the H5N1 strain of avian influenza collected from poultry in Indonesia in 2005 showed they were between 15 and 30 times less sensitive to Tamiflu than a family of the viruses collected in Southeast Asia a year earlier. The study, led by Jennifer McKimm-Breschkin, a virologist at the Commonwealth Science and Industrial Research Organization in Melbourne, was presented at a conference in Toronto [Canada] yesterday

"The decrease in drug sensitivity does not appear to be drug-induced, but may be due to "random mutations" that have occurred as the virus has circulated among birds, McKimm-Breschkin said in her presentation.

Tamiflu is recommended by the World Health Organization (WHO) as the 1st choice for doctors treating human cases of avian flu. Strains either resistant or less sensitive to Tamiflu have been linked to the deaths of at least 5 people in Viet Nam and Egypt, raising concern that the drug won't work effectively in the event of a pandemic.

A vaccine against pandemic flu isn't expected to be widely available until several months after the start of a pandemic, according to the WHO. Without a vaccine, antiviral drugs will be the first line of defense to limit sickness and deaths, and decrease the spread of the contagion. Supplies of Tamiflu that would cover two-thirds of a country's population may cut deaths from flu by half in the event of a pandemic, Roche said in an e-mailed statement today, citing a separate study presented at the flu conference in Toronto. Basel-based Roche is collaborating with researchers to gauge resistance to Tamiflu, David Reddy, head of Roche's influenza task force, said in a telephone interview from Toronto today.

"Resistance should never be taken lightly. We need to constantly look at resistance," Reddy said. The change that has occurred in Indonesia's H5N1 strain "is still modest" and its sensitivity to Tamiflu can vary, he said.

More studies are needed to determine whether a virus's sensitivity to Tamiflu in the laboratory is of any therapeutic significance, said Fred Hayden, a medical officer on the WHO influenza team in Geneva. "The pathogenesis of the infection in patients, how rapidly the virus is growing and, critically, when they present for care" are other variables that influence the drug's effectiveness, Hayden said over the telephone from Toronto today.

The dominant strain of H5N1 circulating in poultry in Vietnam, Malaysia and Cambodia in 2004 was more sensitive to oseltamivir than a human seasonal flu virus known as H1N1, according to laboratory tests on 16 samples. A total of 6 samples of the H5N1 virus from the Kandal region of Cambodia the following year showed a 6-fold to 7-fold decrease in oseltamivir sensitivity, McKimm-Breschkin said. "Results suggest that nature may be a step ahead, and that relying solely on oseltamivir for stockpiles poses the risk that we will be left behind without an effective drug," she said.

The effectiveness of GlaxoSmithKline Plc's Relenza antiviral treatment was tested on the same samples in the study. There was no change in the sensitivity to the drug across the 2 main virus families, or clades, tested, McKimm-Breschkin said. Relenza, an inhaled medicine, is known scientifically as zanamivir and belongs to the same class of drugs as Tamiflu, neuraminidase inhibitors.

"As all H5N1 clades retain sensitivity to it, zanamivir should also form part of any pandemic stockpile," said McKimm-Breschkin, who was a member of a team of scientists that discovered the drug.

Resistance to neuraminidase inhibitors "has been clinically negligible so far, but is likely to be detected during widespread use during a pandemic," WHO says on its website.

Doctors are testing whether avian flu patients need a double dose. Inadequate dosing with oseltamivir may lead to the emergence of high-level resistance of the drug, McKimm-Breschkin said. The problem could be exacerbated if it's given to patients who are infected with a less sensitive strain, such as that circulating in Indonesia, she said.

International, Wild Birds (Forbes, June 24): 3 wild birds in Germany have died of the feared H5N1 strain of bird flu, a health official in Nuremberg in southern Germany said. Katja Guenther said tests carried out by the Friedrich Loeffler Institute confirmed that 2 swans and a duck suffered from the H5N1 strain of the virus. She said tests were being conducted on another 7 birds that died of bird flu to see whether they too had been carriers of H5N1, which is potentially lethal for humans.

The dead wild birds that were infected with the virus were found near Nuremberg in the past week. Local authorities said at the weekend that they planned to cordon off areas to prevent the disease from spreading.

Germany battled a bird flu epidemic in 2005. It broke out on the Baltic Sea island of Ruegen and spread to 6 of the country's 16 states. The disease spread to mammals, killing a cat and a stone marten, but did not affect humans.

International, Wild Birds (Deutsche Presse-Agentur, June 26): A summer outbreak of bird flu in Germany was confirmed on Tuesday to have spread to a second state, with 3 swans killed by the deadly form of avian influenza in a small town close to Leipzig. At the end of last week, 6 swans killed by the virus were found in a turgid urban pond in Nuremberg in the state of Bavaria.

The health ministry in Saxony state in Germany's east said 3 dead swans were found in the Frohburg district, south of Leipzig, and a quick test established they were infected with the dangerous H5N1 virus. Saxony state had to exterminate a flock of farm birds last year after they caught H5N1.

More tissue tests are being done at Germany's federal animal-disease laboratory on the Baltic Sea island of Riems. In Nuremberg, a municipal spokeswoman said none of the other dead birds in the city apart from the 6 swans had H5N1.

Scientists on Riems are trying to establish if the virus is connected to outbreaks of avian influenza at a Czech poultry farm and in Hungary. The disease has not been detected in Germany between August 2006 and its appearance late last week in Nuremberg.

Michigan Wild Bird Surveillance (USDA, June 28): For the 2007 testing season, 126 Michigan samples have been taken so far, comprised of 98 live bird samples and 28 morbidity/mortality samples.

According to the National HPAI Early Detection Data System website, HPAI subtype H5N1 has not been recovered from any Michigan samples tested to date, or from the 2148 birds or environmental samples tested nationwide. The 2007 testing season will run from April 1, 2007-March 31, 2008. 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

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 June 25, 2007)

(Source: http://www.oie.int/downld/AVIAN%20INFLUENZA/A_AI-Asia.htm Downloaded 6/26/2007)

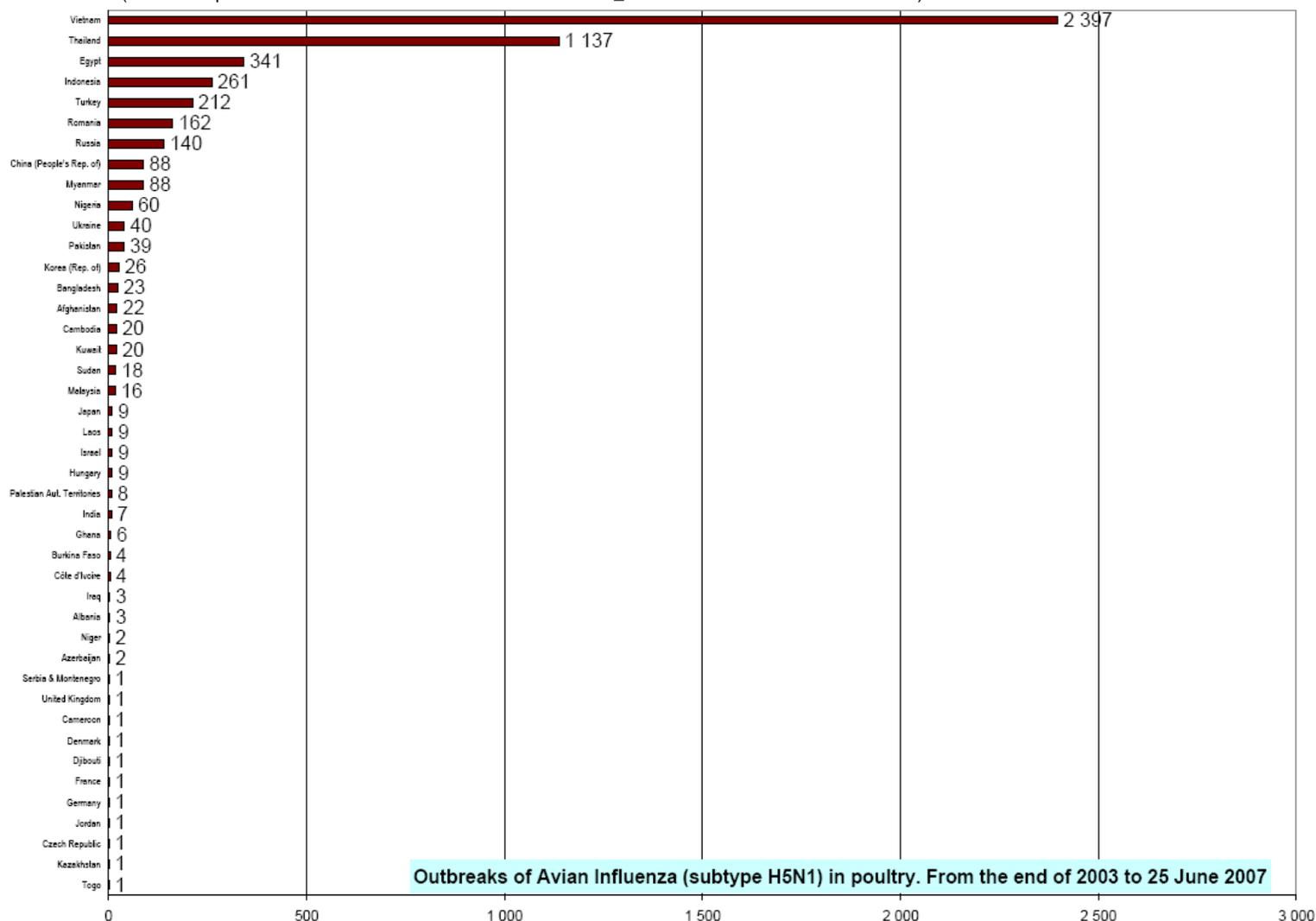


Table 2. H5N1 Influenza in Humans (Cases up to June 25, 2007)

(http://www.who.int/entity/csr/disease/avian_influenza/country/cases_table_2007_06_25/en/index.html Downloaded 6/25/2007)

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	1	1	7	7
China	1	1	0	0	8	5	13	8	3	2	25	16
Djibouti	0	0	0	0	0	0	1	0	0	0	1	0
Egypt	0	0	0	0	0	0	18	10	19	5	37	15
Indonesia	0	0	0	0	20	13	55	45	26	22	101	80
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	52	33	315	191