



# 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:** Michigan continues to experience higher than normal influenza activity.
  - **National Surveillance:** Over 5700 cases of swine-origin influenza A H1N1 virus have been detected.
  - **International Surveillance:** 41 countries are reporting swine-origin influenza A H1N1 infections.
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### ***\*\*\*Novel Influenza A (H1N1) virus (Swine-origin Flu) Investigation\*\*\****

**Michigan (MDCH):** As of May 21, 2009, 4:00pm, the Michigan Department of Community Health had confirmed 175 cases of swine-origin influenza A (H1N1) in Michigan. The MDCH Bureau of Laboratories is now able to perform confirmatory testing for this virus, so testing turnaround time is greatly reduced.

Please continue to reference the State of Michigan's swine-origin influenza A (H1N1) website at [www.michigan.gov/swineflu](http://www.michigan.gov/swineflu) for the most up to date case counts and additional information. Local health departments can find additional guidance documents on the MI-HAN homepage.

**National (CDC):** As of May 21, 2009, 11:00am, the Centers for Disease Control and Prevention (CDC) is reporting 5764 confirmed human infections, including 9 deaths, in the United States. These cases are being reported from 48 states and the District of Columbia. This number is expected to rise as the outbreak evolves and now that state public health laboratories have a diagnostic test to confirm swine-origin influenza A (H1N1) infections. For the most up to date information, including guidance documents, please visit the CDC's website at [www.cdc.gov/h1n1flu/](http://www.cdc.gov/h1n1flu/).

Novel influenza A (H1N1) is a new flu virus of swine origin that was first detected in April, 2009. The virus is infecting people and is spreading from person-to-person, sparking a growing outbreak of illness in the United States. An increasing number of cases are being reported internationally as well.

It's thought that novel influenza A (H1N1) flu spreads in the same way that regular seasonal influenza viruses spread; mainly through the coughs and sneezes of people who are sick with the virus.

It's uncertain at this time how severe this novel H1N1 outbreak will be in terms of illness and death compared with other influenza viruses. Because this is a new virus, most people will not have immunity to it, and illness may be more severe and widespread as a result. In addition, currently there is no vaccine to protect against this novel H1N1 virus. CDC anticipates that there will be more cases, more hospitalizations and more deaths associated with this new virus in the coming days and weeks.

Novel influenza A (H1N1) activity is now being detected through CDC's [routine influenza surveillance systems](#) and reported weekly in FluView. CDC tracks U.S. influenza activity through multiple systems across five categories. The fact that novel H1N1 activity can now be monitored through seasonal surveillance systems is an indication that there are higher levels of influenza-like illness in the United States than is normal for this time of year. About half of all influenza viruses being detected are novel H1N1 viruses.

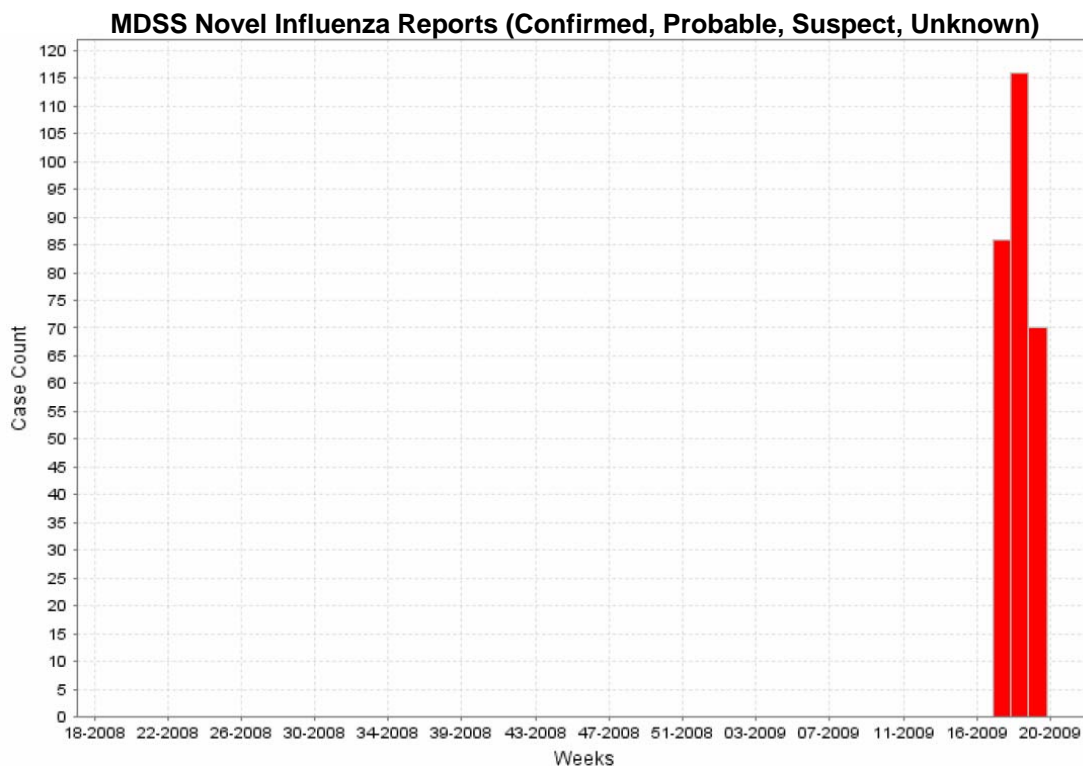
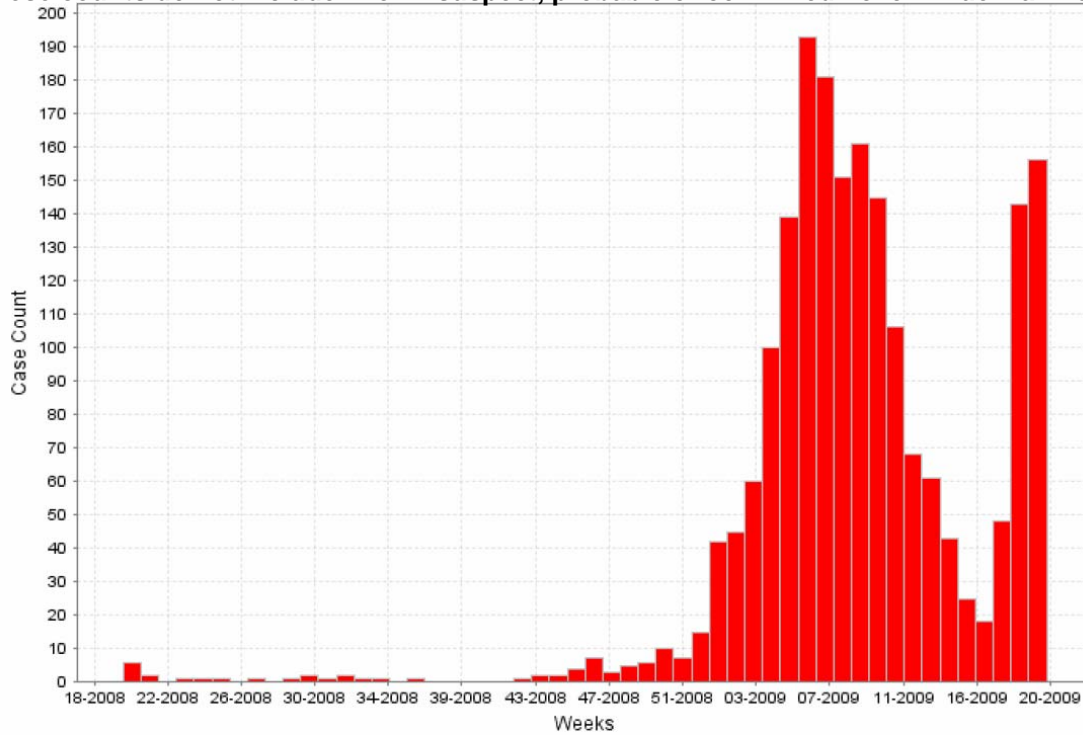
**International (WHO):** As of 6:00 GMT, 21 May 2009, 41 countries have officially reported 11,034 cases of influenza A (H1N1) infection. Updated case counts and notices can be found online at <http://www.who.int/csr/disease/swineflu/en/index.html>.

WHO is not recommending travel restrictions related to the outbreak of the influenza A(H1N1) virus. Individuals who are ill should delay travel plans and returning travelers who fall ill should seek appropriate medical care. These recommendations are prudent measures which can limit the spread of many communicable diseases, including influenza. Further information on the situation will be available on the WHO web site (<http://www.who.int/en/>) on a regular basis.

**Michigan Disease Surveillance System:** The week ending May 16 saw aggregate flu-like numbers drop slightly and individual influenza reports increase slightly over the previous week's numbers. Both individual influenza and aggregate flu-like numbers are higher than numbers seen this time last year.

On the novel flu front, the week ending May 16 saw a slight decrease in suspect, probable, and confirmed H1N1 cases in MDSS. As of May 21, Michigan has 175 confirmed of novel H1N1 influenza.

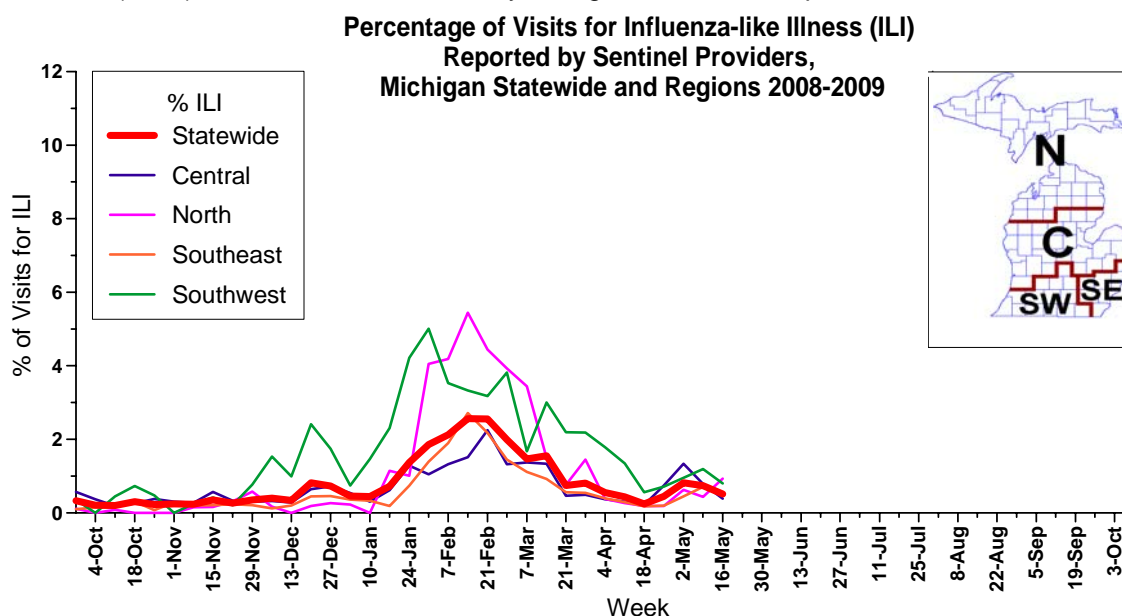
**MDSS Individual Influenza Reports (Confirmed, Probable, Suspect, Unknown)**  
**These counts do not include known suspect, probable or confirmed novel influenza infections**



**Emergency Department Surveillance:** Emergency department visits from constitutional complaints decreased, while respiratory complaints remained steady near the previous week's levels. Respiratory numbers are comparable to numbers seen at this time last year, while constitutional numbers are considerably higher. No constitutional alerts and six respiratory alerts in the C(2), N(2) and SW(2) Influenza Surveillance Regions were generated last week. The large increase in these ED visits is most likely due to patients, presenting with a range of mild to moderate respiratory symptoms including fever, who may be aware of the novel H1N1 virus that is circulating.

**Over-the-Counter Product Surveillance:** OTC product sales were mixed last week. Chest rubs and cough and cold medication sales were up slightly, and the remainder (thermometers and children's electrolytes) saw a slight decrease in sales. Indicator levels are comparable to those seen at this time last year, except for thermometers and children's electrolytes, which are slightly higher.

**Sentinel Provider Surveillance (as of May 21):** During the week ending May 16, 2009, 0.5% of all office visits reported by Michigan influenza sentinel sites were due to influenza-like illness (ILI); this is a decrease from the previous week. At this time we are unsure how much of an impact novel influenza A (H1N1) virus has had on ILI activity. There were 44 patient visits due to ILI reported out of 8,453 office visits; 30 sentinel sites provided data for this report. Activity increased in one surveillance region: North (0.9%); and decreased in the other three surveillance regions Central (0.4%), Southeast (0.5%) and Southwest (0.8%). 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](mailto:CarltonC2@michigan.gov) for more information.

**Laboratory Surveillance (as of May 20):** During the past week, 2 new seasonal influenza isolates were identified at the MDCH Bureau of Laboratories (BOL). For the 2008-2009 influenza season, MDCH BOL has identified 314 seasonal influenza isolates (followed by Influenza Surveillance Regions of origin):

- 186 A/H1N1 or A/H1 (62SE, 43SW, 25C, 56N)
- 9 A/H3N2 or A/H3 (4SE, 2SW, 1C, 2N)
- 119 B (24SE, 45SW, 14C, 36N)
  - 9 B/Florida/4/2006-like (4SE, 1SW, 1C, 3N)
  - 108 B/Malaysia/2506/2004-like (20SE, 43SW, 12C, 33N)
  - 1 untypable (SW)
  - 1 pending subtyping (C)

For the week ending May 16, 9 sentinel laboratories provided data. Activity was mixed, with 4 labs (SE,C) reporting increased positive influenza A results and 5 labs (SE, SW, C, N) reporting decreasing or zero positive influenza A results. The increase in positive results for influenza A may be an indication of swine-origin influenza A (H1N1) circulation, or this finding may also be due to an increased interest in influenza testing. All labs reported zero or sporadic influenza B positives (SE, SW, C, N).

**Michigan Seasonal Influenza Antigenic Characterization (as of May 21):** At this time, 24 influenza seasonal A/H1N1 isolates have been antigenically characterized by the CDC; results indicate all seasonal 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 Seasonal Influenza Antiviral Resistance Data (as of May 21):** 24 influenza seasonal 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>.

For information about antiviral susceptibility for swine-origin influenza A (H1N1), go to <http://www.cdc.gov/h1n1flu/antiviral.htm>.

**Seasonal Influenza-Associated Pediatric Mortality (as of May 21):** Three influenza-associated pediatric mortalities (1 influenza A (SW), 2 influenza B (SE)) have been reported to MDCH for the 2008-2009 influenza season.

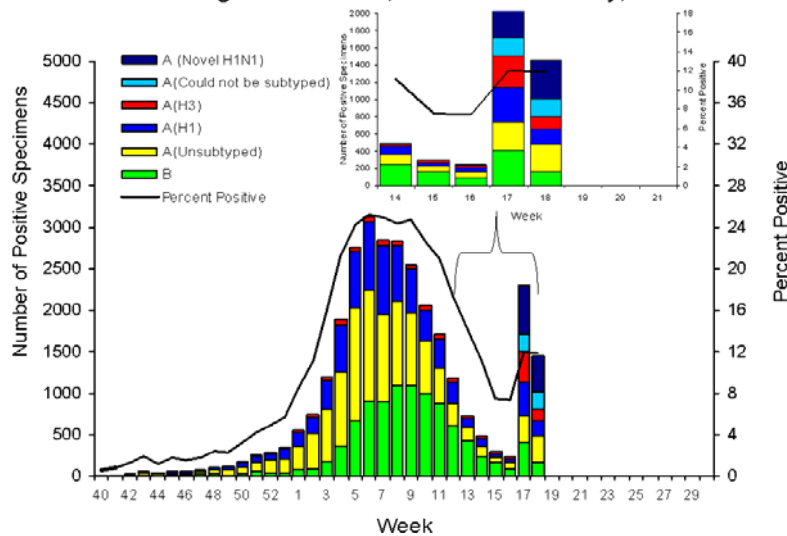
\*\*\*The CDC has asked all states to collect information on any pediatric death associated with influenza infection. This includes not only any death in a child (<18 years) resulting from a compatible illness confirmed to be influenza by an appropriate diagnostic test, but also any unexplained death 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](http://www.michigan.gov/documents/mdch/ME_pediatric_influenza_guidance_v2_214270_7.pdf).

**Seasonal Influenza Congregate Settings Outbreaks (as of May 21):** Three congregate setting outbreaks (1C, 2N) due to seasonal influenza (1 influenza A, 1 influenza B, 1 untyped) have been reported to MDCH for the 2008-09 influenza season.

**National (CDC [edited], May 15):** During week 18 (May 3 - 9, 2009), influenza activity remained at approximately the same level as last week in the United States, indicating that there are higher levels of influenza-like illness than is normal for this time of year. One thousand four hundred fifty-four (11.9%) 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. Three influenza-associated pediatric deaths were reported. The proportion of outpatient visits for influenza-like illness (ILI) was above the national baseline. Three of the ten surveillance regions reported ILI above their region-specific baselines. Eight states reported geographically widespread influenza activity, 14 states reported regional activity, the District of Columbia and 15 states reported local influenza activity; and 13 states reported sporadic activity.

During week 18, seasonal influenza A (H1), A (H3), and B viruses continue to co-circulate with novel influenza A (H1N1). About half of all influenza viruses being detected are novel H1N1 viruses. The number of specimens tested by WHO and NREVSS collaborating laboratories during week 18 increased in response to the ongoing novel influenza A (H1N1) investigations. The increase in the percentage of specimens testing positive for influenza also may be due in part to changes in testing practices by healthcare providers, triaging of specimens by public health laboratories, an increase in the number of specimens collected from outbreaks, and other factors.

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

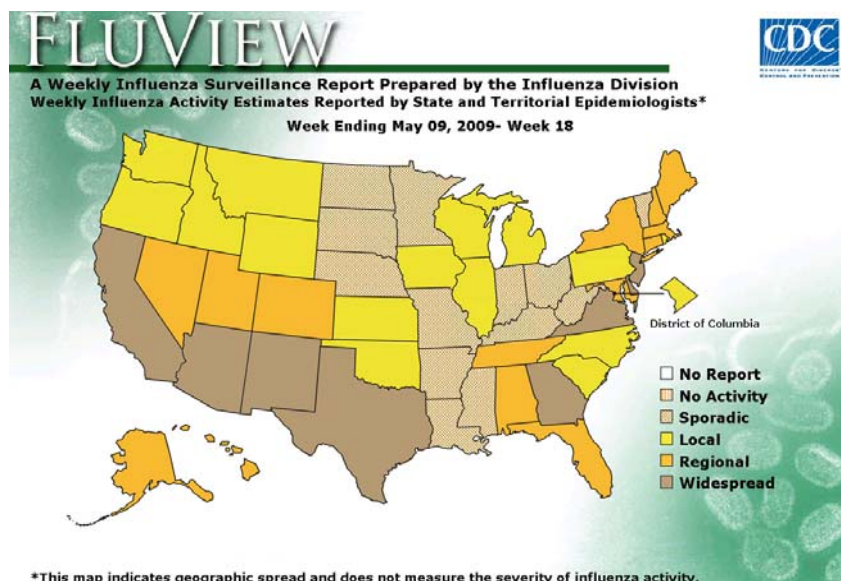


Since October 1, 2008, 865 seasonal influenza A (H1N1), 134 influenza A (H3N2), and 424 influenza B viruses have been tested for resistance to the neuraminidase inhibitors (oseltamivir and zanamivir). Eight hundred seventy-six seasonal influenza A (H1N1) and 145 influenza A (H3N2) viruses have been tested for resistance to the adamantanes (amantadine and rimantadine). One hundred one novel influenza A (H1N1) viruses have been tested for resistance to the neuraminidase inhibitors (oseltamivir and zanamivir). Ninety-six novel influenza A (H1N1) 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 (%) |
|-----------------------------|---------------------|-------------------------------|-----------|---------------------|-------------------------------|
|                             |                     | Osetamivir                    | Zanamivir |                     |                               |
| Seasonal Influenza A (H1N1) | 865                 | 860 (99.4%)                   | 0 (0)     | 876                 | 4 (0.5%)                      |
| Influenza A (H3N2)          | 134                 | 0 (0)                         | 0 (0)     | 145                 | 145 (100%)                    |
| Influenza B                 | 424                 | 0 (0)                         | 0 (0)     | N/A*                | N/A*                          |
| Novel Influenza A (H1N1)    | 101                 | 0 (0)                         | 0 (0)     | 96                  | 96 (100%)                     |

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

Antiviral treatment with either oseltamivir or zanamivir is recommended for all patients with confirmed, probable or suspected cases of novel influenza A (H1N1) virus infection who are hospitalized or who are at higher risk for seasonal influenza complications. The novel influenza A (H1N1) virus is susceptible to both neuraminidase inhibitor antiviral medications zanamivir and oseltamivir. It is resistant to the adamantane antiviral medications, amantadine and rimantadine. Additional information on antiviral recommendations for treatment and chemoprophylaxis of novel influenza A (H1N1) infection is available at <http://www.cdc.gov/h1n1flu/recommendations.htm>



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

**International (WHO, May 15):** *This summary provides an updated report of seasonal influenza activity for weeks 17-18 of 2009. It does not include reports of avian influenza in humans, which are available at: [the WHO avian influenza page](#). or reports of the recent influenza A (H1N1) virus which has recently emerged, which are available at: [the WHO page for influenza A\(H1N1\)](#).*

During the weeks 17-18, influenza seasonal activity continued to decrease in the northern hemisphere. Local activity due to seasonal influenza was reported by Canada (H1,H3,B), the Russian Federation (H1,H3,B) and United States of America (H1,H3,B). More countries in the southern hemisphere reported sporadic activity due to H1, H3 or B than in previous weeks. Mexico reported regional activity due to the new influenza A (H1N1) virus and low level B activity.

Sporadic influenza activity was observed in Australia (H1,H3,B), China (H1,H3,B), Denmark (H3,B), Estonia (B), Israel (H1,B), Italy (H1), Kazakhstan (A,B), Kenya (H1,H3), Latvia (H1,H3,B), Madagascar (H3,B), New Zealand (H1,H3), Oman (H3,B), Romania (A), Slovenia (H3,B), Spain (B), South Africa (H3,B), Switzerland (B) and Turkey (B).

Argentina, Belgium, Cameroon, Greece, Iran, Poland and Senegal reported no activity.

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MDCH reported **LOCAL INFLUENZA ACTIVITY** to the CDC for the week ending May 16, 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](http://www.michigan.gov/mdch/0,1607,7-132-2940_2955_22779_40563-125027--,00.html). *FluBytes* is published weekly during the influenza season.

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### **Avian and Novel Influenza Activity**

**WHO Pandemic Phase:** Phase 5 - characterized by human-to-human spread of the virus into at least two countries in one WHO region. While most countries will not be affected at this stage, the declaration of Phase 5 is a strong signal that a pandemic is imminent and that the time to finalize the organization, communication, and implementation of the planned mitigation measures is short.

**International, Human (WHO, May 15):** The Ministry of Health of Egypt has reported a new confirmed human case of avian influenza. The case is a 5-year old female from Tama District, Sohag Governorate. Her symptoms began on 7 May and she was admitted in Sohag Fever Hospital on 9 May where she received oseltamivir. She is in a stable condition.

The case was confirmed by the Egyptian Central Public Health Laboratories on 10 May 2009.

Investigations into the source of infection indicate close contact with dead and sick poultry.

The Ministry of Health of Egypt has announced the deaths of previously confirmed cases of H5N1 as follows:

[6-year-old male](#) from Qaliobia Governorate;  
[33-year-old female](#) from Kfr El Sheikh Governorate  
[25-year-old female](#) from Cairo Governorate

Of the 69 cases confirmed to date in Egypt, 26 have been fatal.

**National, Avian (UC Daily News, April 30):** State and federal authorities are responding to an indication of low-pathogenic avian influenza on a single farm in Giles County, Tennessee.

The strain poses minimal risk to human health and is not the high-pathogenic strain associated with human and poultry outbreaks in other countries.

Nor is it related to the novel flu virus, commonly referred to as swine flu.

On April 24, preliminary test results during routine surveillance indicated the possibility of an avian influenza virus.

Subsequent testing by USDA's National Veterinary Services Laboratory in Ames, Iowa indicates an exposure to the H7 strain of low-pathogenic avian influenza.

As part of routine procedures, animal health officials with the Tennessee Department of Agriculture have restricted movement of birds on the affected farm and are currently considering additional surveillance on backyard and commercial flocks in the area.

Currently, there are no indications of exposure to other area farms.

"We're working closely with our state, federal and industry partners and I have every confidence that the actions we are taking will protect animal health and our state's poultry industry," said state Agriculture Commissioner Ken Givens.

"It's through this partnership that we were able to find and quickly move to address the situation."

The affected farm produces breeding stock used in the poultry industry, and no birds have entered the human food supply.

Avian influenza is not transmitted through poultry meat or eggs, which are safe to consume with regular proper handling and preparation.

Avian influenza is a virus that affects domestic poultry and some wild birds. It is spread to healthy birds by direct contact with infected birds or infected material, often through feces from infected birds.

Low-pathogenic avian influenza causes little if any illness and is typically not fatal to poultry.

For more information on avian influenza in poultry, visit the Tennessee Department of Agriculture's Web site at <http://www.TN.gov/agriculture/regulatory/birdflu.html>.

**International, Avian (Thai News Service, May 18):** Samples taken from 13-day old ducks at a household in Thanh Loi commune, Binh Tan district in southern Vinh Long province have tested positive for the A/H5N1 virus, according to the provincial Animal Health Department.

This is the first time bird flu has been detected in Binh Tan this year.

The virus was also found in 1,200 ducks belonging to farmer Le Minh Tuan, which had not been vaccinated. He said that from May 5-12, his flock of ducks had shown symptoms of a flu-like disease and some 200 ducks were later found dead. On May 13, the provincial Animal health Department took samples from the flock and sent them for testing at a veterinary agency in Can Tho city.

On May 14, the provincial Animal Health Department culled all the remaining ducks, disinfected the immediate areas, and vaccinated other flocks in the districts. They also began a campaign to raise public awareness of preventative measures.

**Michigan Wild Bird Surveillance (USDA, as of May 21):** For the 2009 testing season, no Michigan samples have been taken so far. HPAI subtype H5N1 has not been recovered from any Michigan samples tested to date, or from the 182 birds or environmental samples tested nationwide for the 2009 testing season, which will run from April 1, 2009 - March 31, 2010. 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](mailto:VagaskyS@Michigan.gov) with any questions regarding this newsletter or to be added to the weekly electronic mailing list.**

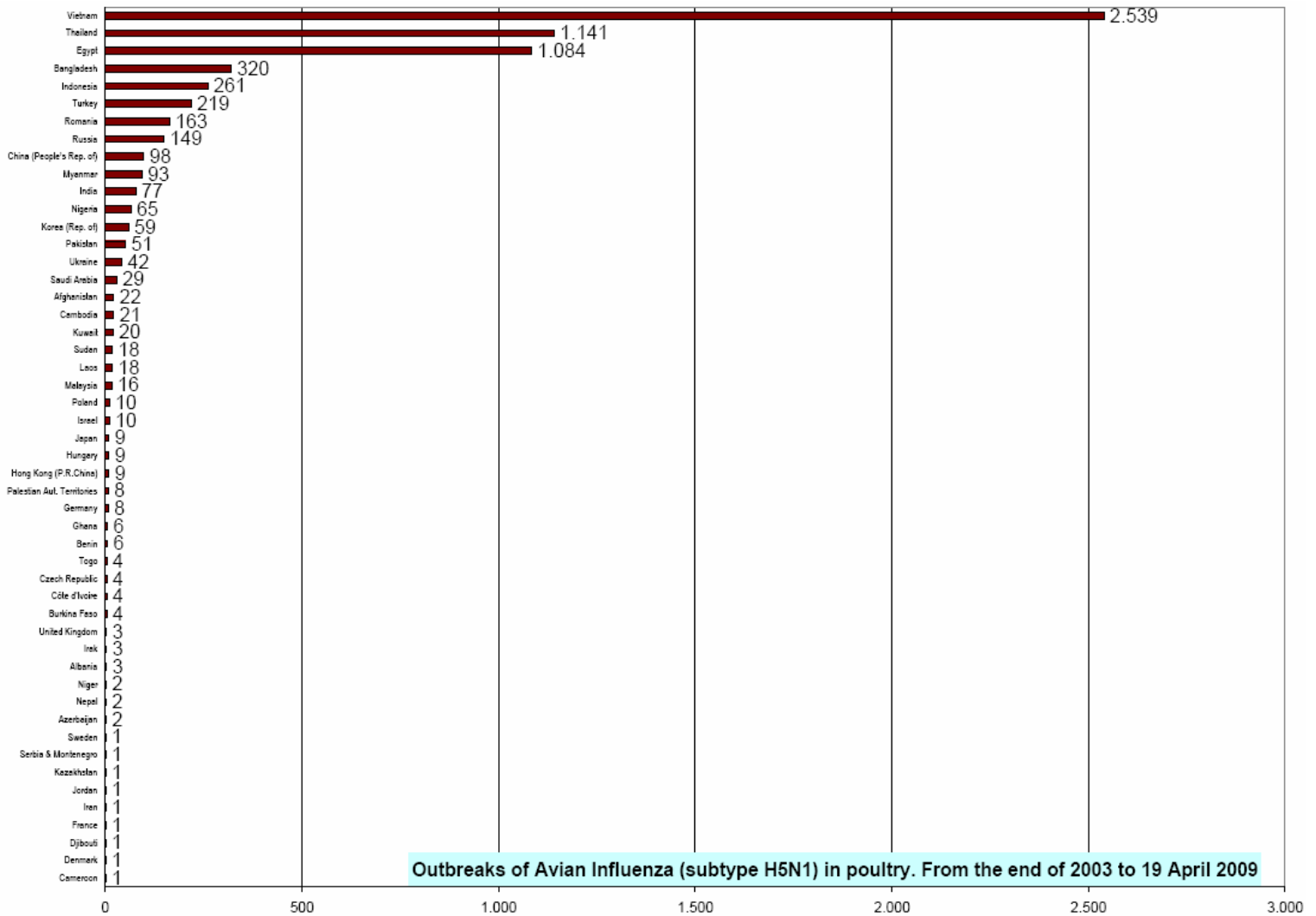
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**Table 1. H5N1 Influenza in Poultry (Outbreaks up to April 19, 2009)**

(Source: [http://www.oie.int/downld/AVIAN%20INFLUENZA/A\\_AI-Asia.htm](http://www.oie.int/downld/AVIAN%20INFLUENZA/A_AI-Asia.htm) Downloaded 4/21/09)



**Outbreaks of Avian Influenza (subtype H5N1) in poultry. From the end of 2003 to 19 April 2009**

**Table 2. H5N1 Influenza in Humans (Cases up to May 15, 2009)**

([http://www.who.int/csr/disease/avian\\_influenza/country/cases\\_table\\_2009\\_05\\_15/en/index.html](http://www.who.int/csr/disease/avian_influenza/country/cases_table_2009_05_15/en/index.html) Downloaded 5/15/2009)

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      | 18    | 3      | 69    | 26     |
| 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      | 4     | 4      | 111   | 56     |
| Total                            | 4     | 4      | 46    | 32     | 98    | 43     | 115   | 79     | 88    | 59     | 44    | 33     | 29    | 11     | 424   | 261    |