



# MI FluFocus

Influenza Surveillance Updates  
Bureaus of Epidemiology and Laboratories



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## Current Influenza Activity Levels:

- **Michigan:** Sporadic activity
- **United States:** During week 14 (April 3-9, 2011), influenza activity in the United States continued to decrease

## Updates of Interest:

**National:** Low pathogenic H7N9 avian influenza detected in a Nebraska backyard poultry flock

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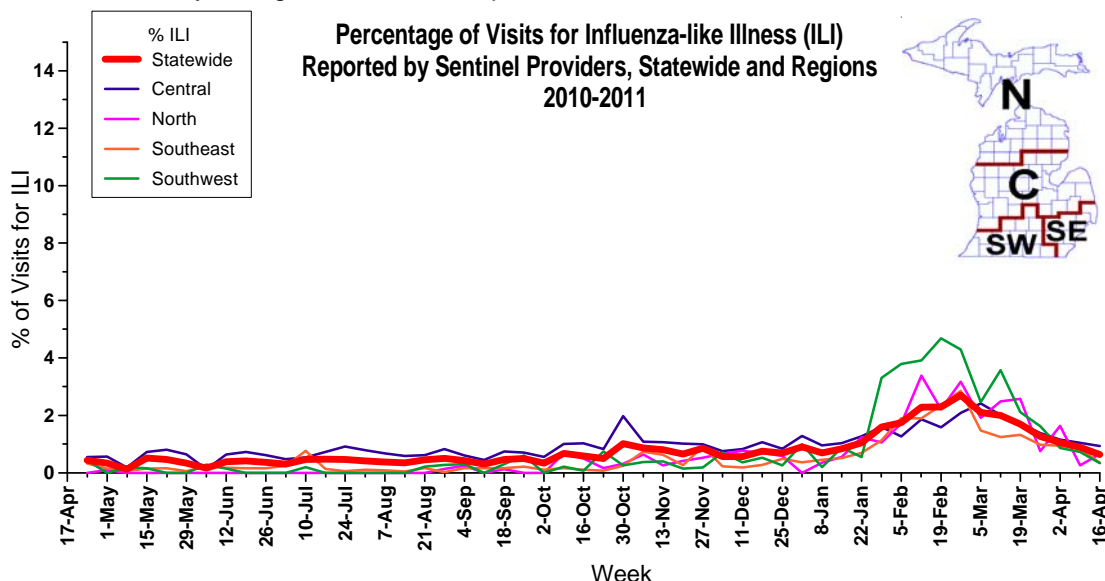
## Influenza Surveillance Reports

**Michigan Disease Surveillance System:** MDSS data for the week ending April 16<sup>th</sup> indicated that individual reports decreased when compared to the previous week, while aggregate reports increased slightly but remained at low levels. The decrease in aggregate reports may be in part due to school spring breaks. Individual influenza cases are higher, while aggregate influenza cases are similar, than levels seen during the same time last year.

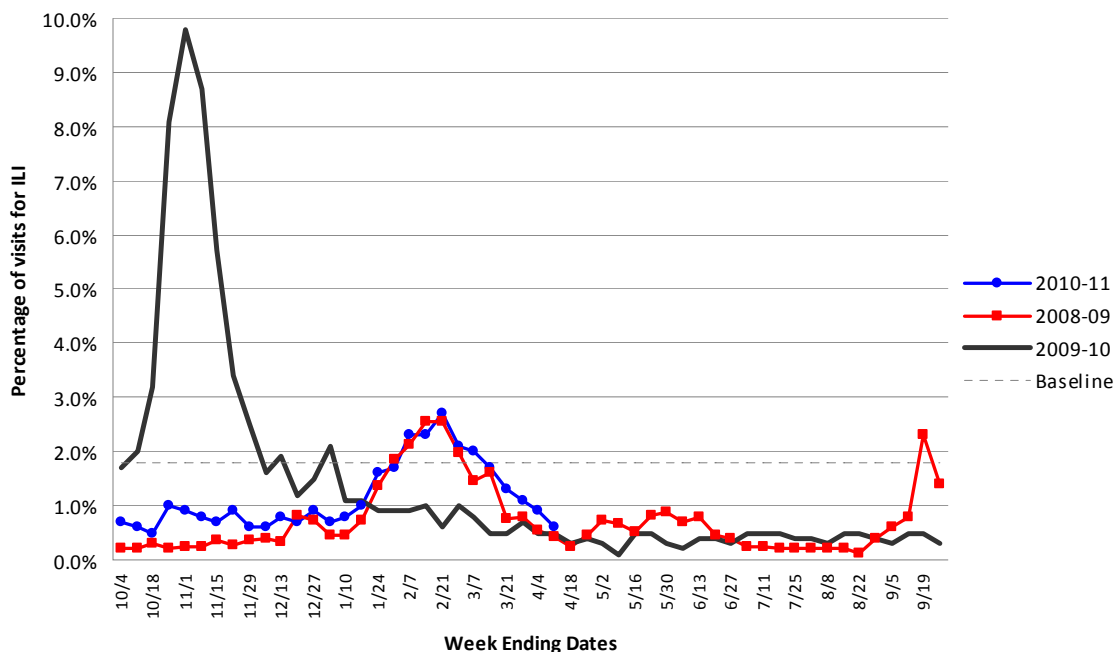
**Emergency Department Surveillance:** Compared to the previous week's levels, emergency department visits from constitutional and respiratory complaints continued to decrease. Constitutional complaints are slightly higher, while respiratory complaints are comparable, to levels reported during the same time period last year. In the past week, there were no constitutional alerts and one respiratory alert in the N Influenza Surveillance Region.

**Over-the-Counter Product Surveillance:** When compared to the previous week's data, sales of chest rubs decreased slightly, un-promoted cough/cold medications increased slightly, and all other indicators remained steady. When compared to this time last year, sales of chest rubs and un-promoted children's electrolytes are slightly increased, while all other indicators are at similar levels.

**Sentinel Provider Surveillance (as of April 21):** During the week ending April 16, 2011, the proportion of visits due to influenza-like illness (ILI) decreased to 0.6% overall; this is below the regional baseline of 1.8%. A total of 84 patient visits due to ILI were reported out of 13,207 office visits. Thirty-eight sentinel sites provided data for this report. Activity decreased in three surveillance regions: Central (0.9%), Southeast (0.3%) and Southwest (0.3%); and increased in one surveillance region: North (0.7%). Please note these rates may change as additional reports are received.



**Percentage of Visits for Influenza Like Illness (ILI) Reported by the US Outpatient  
Influenza-like Illness Surveillance Network (ILINet) - Michigan, 2008-2011**



As part of pandemic influenza surveillance, 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.

**Hospital Surveillance (as of April 16):** During April 10-16, there were 5 new lab-confirmed influenza hospitalizations within the catchment area (Clinton, Eaton and Ingham counties); the total since October 1, 2010 is 50 adult and 49 pediatric cases. Based on these data, the estimated influenza hospitalization incidence rate in the catchment area, from October 1-April 16, is 49 per 100,000 for children and 14 per 100,000 for adults.

**Laboratory Surveillance (as of April 16):** During April 10-16, ten influenza A/H3 isolates and two influenza B isolates were reported by MDCH Bureau of Laboratories. For the 2010-11 season (starting October 3, 2010), MDCH BOL has identified 343 influenza isolates:

- 2009 Influenza A/H1N1: 144
- Influenza A unsubtypeable: 1
- Influenza A/H3: 151
- Influenza B: 47

16 sentinel labs (SE, SW, C, N) reported for the week ending April 16, 2011. 9 labs (SE, SW, C, N) reported influenza A positives, all of which reported decreasing or sporadic flu A activity. 6 labs (SE, C, N) reported flu B positive results, all of which had decreasing or sporadic flu B activity. 14 labs reported RSV positives; 11 labs (SE, SW, C, N) had decreasing or sporadic RSV positives.

**Michigan Influenza Antigenic Characterization (as of April 21):** One influenza A/H3 positive specimen, collected in January from the SE Region, was characterized at CDC as the A/H3/Perth/16/2009-like strain, which is the A/H3 component of the 2010-11 influenza vaccine.

**Michigan Influenza Antiviral Resistance Data (as of April 21):** None of the 23 Michigan influenza isolates tested for antiviral resistance at the CDC during the 2010-2011 season have been resistant to oseltamivir or zanamivir.

Antiviral resistance testing takes months to complete and cannot be used to guide individual patient treatment. However, CDC has made recommendations regarding the use of antivirals for treatment and prophylaxis of influenza, which are available at <http://www.cdc.gov/flu/professionals/antivirals/index.htm>.

**Influenza-Associated Pediatric Mortality (as of April 21):** Six influenza-associated pediatric mortalities (2SE, 4C), one associated with influenza A and five with influenza B, have been reported to MDCH for the 2010-2011 influenza season.

\*\*\*CDC has asked states for information on any pediatric death associated with influenza. This includes not only any pediatric death (<18 years) resulting from a compatible illness with laboratory confirmation of influenza, but also any unexplained pediatric death with evidence of an infectious process. Please immediately call MDCH to ensure proper 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).

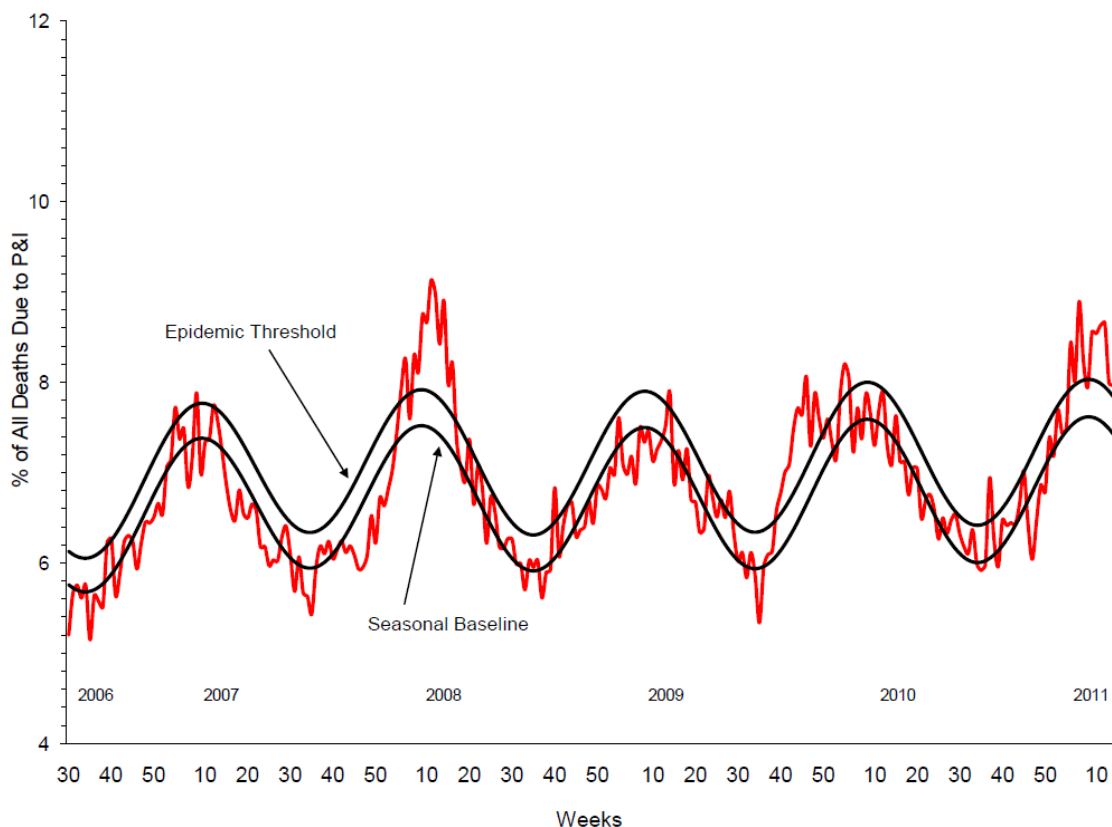
**Influenza Congregate Settings Outbreaks (as of April 21):** One new long-term care outbreak from the C Region, with positive influenza A and B results, was reported during the previous week. 21 total outbreaks have been reported to MDCH for the 2010-2011 season:

- Influenza A/H3: 11 (4SE, 3SW, 1C, 3N)
- Influenza A/H1N1 2009: 2 (2SW)
- Influenza A/H3 and B both found: 1 (SW)
- Influenza A and B both found: 1 (C)
- Influenza B: 1 (C)
- Influenza positive, subtype unknown: 1 (SW)
- No testing or negative: 4 (1SE, 1SW, 2N)

**National (CDC [edited], April 15):** During week 14 (April 3-9, 2011), influenza activity in the United States continued to decrease. Of the 4,234 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, 387 (9.1%) were positive for influenza. The proportion of deaths attributed to pneumonia and influenza (P&I) has been at or above the epidemic threshold for 11 consecutive weeks. One influenza-associated pediatric death was reported, bringing the season total to 91. This death was associated with an influenza B virus. The proportion of outpatient visits for influenza-like illness (ILI) was 1.4%, which is below the national baseline of 2.5%. All 10 regions reported ILI below region-specific baseline levels. Two states experienced low ILI activity; 48 states and New York City experienced minimal ILI activity, and the District of Columbia had insufficient data to calculate an ILI activity level. The geographic spread of influenza in two states was reported as widespread; nine states reported regional influenza activity; the District of Columbia and 23 states reported local influenza activity; Guam and 16 states reported sporadic influenza activity; the U.S. Virgin Islands reported no influenza activity, and Puerto Rico did not report.

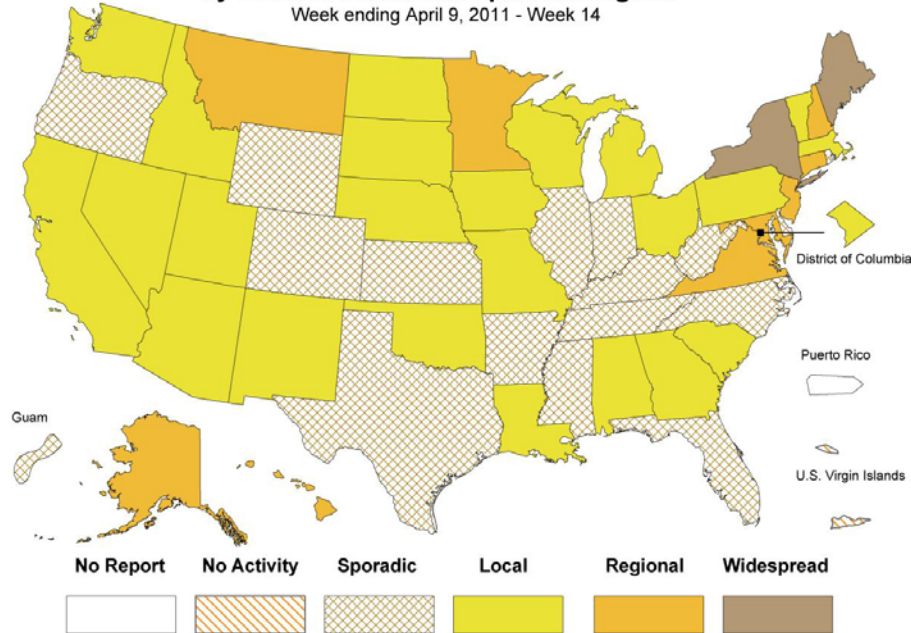
During week 14, 8.0% of all deaths reported through the 122-Cities Mortality Reporting System were due to P&I. This percentage was above the epidemic threshold of 7.8% for week 14 and is the eleventh consecutive week in which P&I has been at or above the epidemic threshold.

Pneumonia and Influenza Mortality for 122 U.S. Cities  
Week ending 4/9/2011

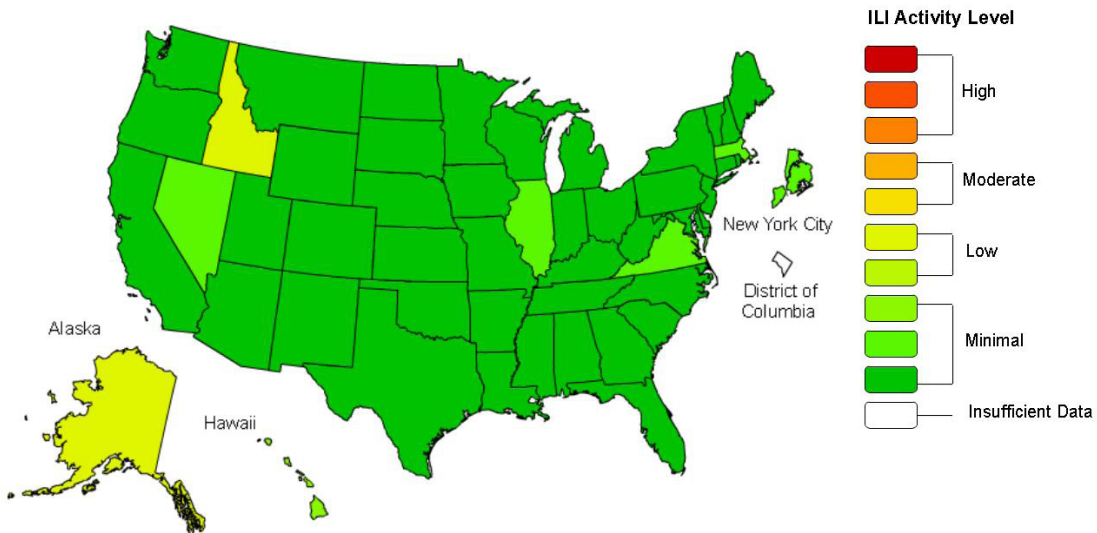


**Weekly Influenza Activity Estimates Reported  
by State & Territorial Epidemiologists\***

Week ending April 9, 2011 - Week 14



**Influenza-Like Illness (ILI) Activity Level Indicator Determined by Data Reported to ILInet  
2010-11 Influenza Season Week 14 ending Apr 09, 2011**



This map uses the proportion of outpatient visits to health care providers for influenza-like illness to measure the ILI activity level within a state. Therefore, outbreaks occurring in a single city could cause the state to display high activity levels. Data collected in ILInet may disproportionately represent certain populations within a state, and therefore, may not accurately depict the full picture of influenza activity for the whole state. Data displayed in this map are based on data collected in ILInet, whereas the State and Territorial flu activity map are based on reports from state and territorial epidemiologists.

The entire weekly report is available online at <http://www.cdc.gov/flu/weekly/fluactivity.htm>.

**International (WHO [edited], March 25):** Worldwide influenza activity is generally low. Influenza activity in the northern hemisphere temperate regions is continuing to decline or back to baseline levels indicating the season is ending. In countries in the tropical zone, influenza activity is low in most areas. In southern hemisphere countries influenza activity has not yet started. Viruses which have been characterized antigenically continue to be largely related to the lineages found in the current trivalent seasonal vaccine, except for a small number of influenza B viruses of the Yamagata lineage.

*Countries in the temperate zone of the northern hemisphere*

In Canada influenza activity has declined in most of western Canada but persists in parts of Alberta, Ontario, Quebec and the Atlantic provinces. The national influenza-like illness (ILI) consultation rates decreased slightly and remained below the average rate for this time of year. The number of influenza

related outbreaks and the number of adult and pediatric hospitalizations with laboratory-confirmed influenza decreased further this week. While the overall percentage of samples testing positive for influenza has again decreased from previous weeks to 11.3%, influenza B is increasing proportionately since January 2010 and now accounts for 44.4% of all influenza viruses detected.

In the USA, in epidemiological week 12, the proportion of outpatient consultations for ILI dropped below the national baseline for the first time since end of December, but the reported deaths due to pneumonia and influenza from the 122 city surveillance system remained still above the national baseline. Twelve influenza-associated pediatric deaths were reported, bringing the total for this season to 89. Thirty-three of the 89 deaths reported were associated with influenza B viruses; 21 were associated with influenza A(H1N1)2009 viruses; 17 deaths reported were associated with influenza A(H3N2) viruses, and 18 were associated with an influenza A virus for which the subtype was not determined.

Overall the proportion of samples testing positive for influenza for week 12 decreased further to 14% with 71% positive for influenza A and 29% positive for influenza B. Among the 301 influenza A viruses that were subtyped, 62% were influenza A(H3N2) viruses and 38% were H1N1 (2009). Of characterized influenza B viruses, 94.3% belong to the B/Victoria lineage, 5.7% to the B/Yamagata lineage. Mexico reported an influenza A outbreak in the state of Chihuahua, which affected primarily the cities of Juarez and Chihuahua. Between March 22 and April 4, 142 cases of ILI and severe acute respiratory infection were identified with 24% confirmed to be due to influenza A(H1N1)2009 virus. The confirmed cases included six deaths in healthy adults, including one pregnant woman). Genetic sequencing carried out by the Institute of Diagnosis and Epidemiological Reference of Mexico on samples from 3 cases showed that the virus is homologous to the currently circulating viruses. The outbreak has not been associated with excessive demand on the health care services. In the rest of Mexico, isolated influenza A(H1N1)2009 cases were reported but no other outbreaks.

Europe: Activity for all influenza indicators in Europe are declining since the last report. Twenty-nine of the 46 reporting countries from the WHO European Region are now below the baseline for consultation rates for ILI or acute respiratory illness (ARI). All countries reported either medium or low influenza activity. In week 12, the proportion of samples testing positive for influenza among sentinel doctors was 22 %, a decrease from 46% in week 10. H1N1 (2009) is co-circulating with influenza B with proportional increase of influenza B. From the influenza positive samples from the sentinel physicians 34% were influenza A and 66% were influenza B. Among influenza A the majority (98%) were H1N1 (2009). Since week 40, 2010, and similar to North America, nearly all influenza A viruses characterized this season in Europe have been antigenically similar to the H1N1 and H3N2 strains included in the current trivalent seasonal influenza vaccine. Approximately 92% of influenza type B viruses characterized are also of the same lineage as those in the current vaccine (Victoria) with the remainder being of the Yamagata lineage.

North Africa and the Middle East: Several countries in North Africa and Middle East are reporting declining influenza activity. Algeria is reporting a decrease of confirmed influenza cases in comparison with last update. Influenza A(H1N1)2009 is now predominating in comparison with influenza B which was more prevalent in the beginning of the influenza season. Tunisia is reporting continued but decreasing circulation of influenza A(H1N1)2009 and influenza B. Oman is reporting a steady decline in the proportion of outpatient visits for ILI. In Iran the number of confirmed influenza cases dropped to levels seen in the beginning of the season with co-circulation of influenza A(H1N1)2009 and influenza B.

Northern Asia: ILI activity in northern hemisphere countries has been declining. In northern China ILI activity remained low and below that observed in the previous three seasons. During epidemiological week 12, only 7% of samples tested positive for influenza, majority (35/44) was influenza B. Japan also reported decreasing ILI activity with for the last weeks predominantly influenza A(H3N2) detections, followed by influenza B. And also in the Republic of Korea, ILI activity remains low. In Mongolia, ILI activity has been sustained through week 12 but majority of samples tested positive for respiratory syncytial virus.

#### *Countries in the tropical zone*

Influenza activity in the tropics remains low. Most countries in the Caribbean, Central America and the Andean region reported low influenza activity and influenza detection rates.

In Sub-Saharan Africa, there is continuous circulation of influenza viruses. In Kenya and Uganda influenza A(H1N1)2009 and B viruses are predominating since beginning of this year. Madagascar saw an increase in influenza activity in the last weeks with influenza A(H3N2) and influenza B co-circulating. In Ghana and Cameroon influenza A(H1N1)2009 was the predominant virus detected in last weeks.

Influenza activity in tropical Asia is low and declining. In southern China for the week 12 the percentage of visits for ILI was below that observed for the previous three seasons. Fourteen percent of the samples tested positive for influenza, but the relative proportion of influenza types was similar to that of northern China with 81% influenza B and 19% influenza A. In China, Hong Kong Special Administrative Region in week 12 reports declining ILI activity to baseline levels and the Center for Health Protection has stated that the influenza season is over. In Viet Nam, 29% of the samples tested were positive for influenza, lower than last month's rate (38%). The majority was influenza A(H1N1)2009 (88%). The Lao People's Democratic Republic (PDR) and Cambodia reported both very low activity. In Lao PDR all 21 tested samples were negative for influenza and in Cambodia 2 of 99 tested specimens were positive for influenza (both influenza B) Singapore, too is reporting a decline in ARI activity, which is now below the warning level.

*Countries in the temperate zone of the southern hemisphere*

Influenza activity remains low in most regions in the temperate zone of the southern hemisphere. Australia continues reporting low activity of influenza, predominantly influenza A(H3N2) in the northern tropical areas of the country.

The entire summary is available online at

[http://www.who.int/csr/disease/influenza/latest\\_update\\_GIP\\_surveillance/en/index.html](http://www.who.int/csr/disease/influenza/latest_update_GIP_surveillance/en/index.html)

**Map of International Activity (CDC):** A Map of International Co-circulation of Seasonal Influenza is available online at <http://cdc.gov/flu/international/map.htm>.

MDCH reported **SPORADIC INFLUENZA ACTIVITY** to CDC for the week ending April 16, 2011.

For additional flu vaccination and education information, the MDCH *FluBytes* newsletter is available 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).

### ***Novel Influenza Activity and Other News***

**WHO Pandemic Phase:** Post pandemic - Influenza disease activity has returned to levels normally seen for seasonal influenza. It is expected that the pandemic virus will behave as a seasonal influenza A virus. It is important to maintain surveillance and update pandemic preparedness/response plans accordingly.

**National, Poultry (Nebraska Department of Agriculture press release [edited], April 13):** State Veterinarian Dr. Dennis Hughes has placed several backyard mixed bird flocks under quarantine after receiving confirmation of a case of low pathogenic Avian Influenza (LPAI) [H7N9] in a backyard flock in Eastern Nebraska. A Nebraska Department of Agriculture (NDA) Bureau of Animal Industry staff member detected the LPAI case through routine testing conducted at a recent exotic bird sale.

"Low path Avian Influenza commonly occurs in wild birds, and so we conduct routine testing of backyard flocks because those flocks often are exposed to the outdoors," Hughes said. "Upon confirmation of the LPAI case, we quickly determined where the birds originated from and where the birds were dispersed to through the exotic bird sale. We have no reason to believe this case is anything other than an isolated incident."

"This is low-path Avian Influenza which isn't usually a human health concern," said Dr. Joann Schaefer, the state's Chief Medical Officer and Director of Public Health for the Nebraska Department of Health and Human Services. "Low-path Avian Influenza is very different than the high-path (H5N1) Avian Influenza that continues to circulate overseas and is a cause for concern."

The backyard flock in which the LPAI was discovered (the initial flock) has been quarantined and will be depopulated based on United States Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS) protocol. Hughes said owners of five additional backyard flocks in Eastern Nebraska purchased birds from the initial flock at the exotic bird sale. So far, two of these flocks tested positive for LPAI and also will be depopulated. Backyard flocks that are within a two-mile radius of the three infected flocks currently are being quarantined and will undergo testing.

“A backyard flock typically consists of hobby birds, show birds or birds used for personal consumption,” said Susan Joy, the general manager of Nebraska Poultry Industries.

NDA encourages all backyard flock producers to follow biosecurity measures on their operations, including: requiring individuals to wash their hands before and after contact with birds; avoid contact with neighbors’ birds; and disinfect boots and change clothes that come into contact with birds other than your own.

NDA conducts Avian Influenza testing as part of a cooperative agreement with the United States Department of Agriculture. Producers who are interested in having their flocks tested, free of charge, can call NDA at 800-572-2437.

Additional information about Avian Influenza, NDA’s testing program and biosecurity measures can be viewed at [www.agr.ne.gov](http://www.agr.ne.gov).

**International, Research (BMC Public Health abstract, April 14):** Assessing secondary attack rates among household contacts at the beginning of the influenza A (H1N1) pandemic in Ontario, Canada, April-June 2009: A prospective, observational study. R Savage et al. *BMC Public Health* 2011, 11:234.

Background: Understanding transmission dynamics of the pandemic influenza A (H1N1) virus in various exposure settings and determining whether transmissibility differed from seasonal influenza viruses was a priority for decision making on mitigation strategies at the beginning of the pandemic. The objective of this study was to estimate household secondary attack rates for pandemic influenza in a susceptible population where control measures had yet to be implemented.

Methods: All Ontario local health units were invited to participate; seven health units volunteered. For all laboratory-confirmed cases reported between April 24 and June 18, 2009, participating health units performed contact tracing to detect secondary cases among household contacts. In total, 87 cases and 266 household contacts were included in this study. Secondary cases were defined as any household member with new onset of acute respiratory illness (fever or two or more respiratory symptoms) or influenza-like illness (fever plus one additional respiratory symptom). Attack rates were estimated using both case definitions.

Results: Secondary attack rates were estimated at 10.3% (95% CI 6.8-14.7) for secondary cases with influenza-like illness and 20.2% (95% CI 15.4-25.6) for secondary cases with acute respiratory illness. For both case definitions, attack rates were significantly higher in children under 16 years than adults (25.4% and 42.4% compared to 7.6% and 17.2%). The median time between symptom onset in the primary case and the secondary case was estimated at 3.0 days.

Conclusions: Secondary attack rates for pandemic influenza A (H1N1) were comparable to seasonal influenza estimates suggesting similarities in transmission. High secondary attack rates in children provide additional support for increased susceptibility to infection.

**International, Human (WHO, April 21):** The Ministry of Health (MoH) of the Kingdom of Cambodia has announced a confirmed case of human infection with avian influenza A(H5N1) virus.

The case was a 5 year old girl from Pea Raing district, Prey Veng Province. She developed symptoms on 11 April, was initially treated by local private practitioners with no effect and was later admitted to Kantha Bopha Children Hospital on 13 April. Despite all intensive care, she died on 16 April, four days after admission.

There have been reports of poultry die off in her village. The girl is the fifteenth person in Cambodia to become infected with the H5N1 virus and the thirteenth to die from complications of the disease. All five cases of H5N1 infections in humans in Cambodia this year have been fatal.

Specimens from 53 contacts of the cases were collected and are being tested by the National Institute for Public Health laboratory.

**International, Human (WHO, April 21):** On 16 April 2011, the Ministry of Health of Egypt notified WHO of two new cases of human infection with avian influenza A (H5N1) virus.

The first case was a 29 years-old male from Fayoum Governorate Wadi Elrian area who developed symptoms on 1 April, was hospitalized on 4 April and died on 7 April.

The second case was a one -and-a -half year-old male child from Fayoum Governorate, Sennores District who developed symptoms on 9 April and was hospitalized on 11 April. He is under treatment and is in stable condition.

All the cases received oseltamivir treatment at the time of hospitalization.

Investigations into the source of infection indicate that both the cases had exposure to sick and/or dead poultry suspected to have avian influenza. There is no epidemiological link identified between these two cases.

The cases were confirmed by the Egyptian Central Public Health Laboratories, a National Influenza Center of the WHO Global Influenza Surveillance Network.

Of the 143 cases confirmed to date in Egypt, 47 have been fatal.

**International, Poultry (OIE [edited], April 18):** Country: Vietnam  
Causal agent: Highly pathogenic avian influenza virus Serotype(s) H5N1

Outbreak 1: Nguyen Thi Minh Khai, Nguyen Thi Minh Khai, TX. Bac Kan, Bac Kan  
Date of start of the outbreak: 03/04/2011; Epidemiological unit: Village  
Species: Birds; Susceptible: 310; Cases: 42; Deaths: 0; Destroyed: 42

Outbreak 2: Hanh Thien, Hanh Thien, Nghia Hanh, QUANG NGAI  
Date of start of the outbreak: 28/03/2011; Epidemiological unit: Village  
Species: Birds; Susceptible: 2970; Cases: 1815; Deaths: 1155; Destroyed: 1815

Outbreak 3: Tinh Iô, Cu Kty, Krong Bong, DAK LAK  
Date of start of the outbreak: 01/04/2011; Epidemiological unit: Village  
Species: Birds; Susceptible: 1000; Cases: 1000; Deaths: 0; Destroyed: 1000

Outbreak 4: Phu Son, Nghia Ky, Tu Nghia, QUANG NGAI  
Date of start of the outbreak: 08/04/2011; Epidemiological unit: Village  
Species: Birds; Susceptible: 1250; Cases: 1250; Deaths: 0; Destroyed: 1250

Outbreak 5: Hong Ly, Chan Ly, Ly Nhan, HA NAM  
Date of start of the outbreak: 04/04/2011; Epidemiological unit: Village  
Species: Birds; Susceptible: 212; Cases: 212; Deaths: 0; Destroyed: 212

Outbreak 6: Tan Binh, Tan Binh, Cai Lay, TIEN GIANG  
Date of start of the outbreak: 29/03/2011; Epidemiological unit: Village  
Species: Birds; Susceptible: 500; Cases: 500; Deaths: 0; Destroyed: 500

Outbreak 7: Tan Phu, Tan Phu, Cai Lay, TIEN GIANG  
Date of start of the outbreak: 30/03/2011; Epidemiological unit: Village  
Species: Birds; Susceptible: 690; Cases: 690; Deaths: 0; Destroyed: 690

**International, Wild Birds (OIE [edited], April 19):** Country: Mongolia  
Causal Agent: Highly pathogenic avian influenza virus Serotype(s) H5  
Date of first confirmation of the event: 11/04/2011; Date of Start of Event: 05/04/2011  
Province: SUKHBAATAR; District: Dariganga soum; Location: Zegst lake  
Species: Wild species; Cases: 3; Deaths: 3; Destroyed: 0; Slaughtered: 0  
Affected Population: Whooper swans (*Cygnus cygnus*)

**Michigan Wild Bird Surveillance (USDA, as of April 21):** For the 2010 season (April 1, 2010-March 31, 2011), highly pathogenic avian influenza H5N1 has not been recovered from 40,659 samples tested nationwide, including 1283 Michigan samples (7 live bird, 1203 hunter-killed birds, 73 morbidity/mortality). For more information, visit <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>.

**International Poultry and Wild Bird Surveillance (OIE):** Reports of avian influenza activity, including summary graphs of avian influenza H5N1 outbreaks in poultry, can be found at the following website: [http://www.oie.int/download/AVIAN%20INFLUENZA/A\\_AI-Asia.htm](http://www.oie.int/download/AVIAN%20INFLUENZA/A_AI-Asia.htm).

**For questions or to be added to the distribution list, please contact Susan Peters at [PetersS1@michigan.gov](mailto:PetersS1@michigan.gov)**

**Contributors**

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**Table. H5N1 Influenza in Humans - Cases up to April 21, 2011.** [http://www.who.int/csr/disease/avian\\_influenza/country/cases\\_table\\_2011\\_04\\_21/en/index.html](http://www.who.int/csr/disease/avian_influenza/country/cases_table_2011_04_21/en/index.html). Downloaded 4/21/2011. Cumulative number of lab-confirmed cases reported to WHO. Total cases includes deaths.

Country	2003		2004		2005		2006		2007		2008		2009		2010		2011		Total	
	cases	deaths	cases	deaths	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	0	0	0	0	8	5
Bangladesh	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	3	0
Cambodia	0	0	0	0	4	4	2	2	1	1	1	0	1	0	1	1	5	5	15	13
China	1	1	0	0	8	5	13	8	5	3	4	4	7	4	2	1	0	0	40	26
Djibouti	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
Egypt	0	0	0	0	0	0	18	10	25	9	8	4	39	4	29	13	24	7	143	47
Indonesia	0	0	0	0	20	13	55	45	42	37	24	20	21	19	9	7	5	4	176	145
Iraq	0	0	0	0	0	0	3	2	0	0	0	0	0	0	0	0	0	0	3	2
Lao PDR	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	2	2
Myanmar	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
Nigeria	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	1	1
Pakistan	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	0	0	0	3	1
Thailand	0	0	17	12	5	2	3	3	0	0	0	0	0	0	0	0	0	0	25	17
Turkey	0	0	0	0	0	0	12	4	0	0	0	0	0	0	0	0	0	0	12	4
Viet Nam	3	3	29	20	61	19	0	0	8	5	6	5	5	5	7	2	0	0	119	59
Total	4	4	46	32	98	43	115	79	88	59	44	33	73	32	48	24	36	16	552	322