



MI Flu Focus

Influenza Surveillance Updates
Bureaus of Epidemiology and Laboratories



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Current Influenza Activity Levels:

- **Michigan:** Regional activity
- **National:** During February 5-11, influenza activity in the U.S. continued to increase

Updates of Interest

- **Michigan:** Additional testing by the CDC on a previously reported seasonal influenza A/H1N1 result reveals a false positive result

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****Notice to Readers****

Twelve human cases of a novel influenza A (H3N2) virus have recently been reported by CDC. There are no known cases in Michigan to date, but recent investigations in those states with cases have suggested some instances of limited human-to-human transmission. CDC has asked all states to conduct surveillance for suspect cases of this novel virus by increasing influenza testing. Therefore, the Michigan Department of Community Health is requesting all healthcare providers, hospitals and laboratories to assist in this effort. Influenza testing for all patients with an influenza-like illness is highly recommended, and all positive influenza specimens should be forwarded to the MDCH Bureau of Laboratories for additional confirmation. Please call the MDCH Division of Communicable Disease at 517-335-8165 with questions or to report suspect cases. Additional guidance is available at www.michigan.gov/flu.

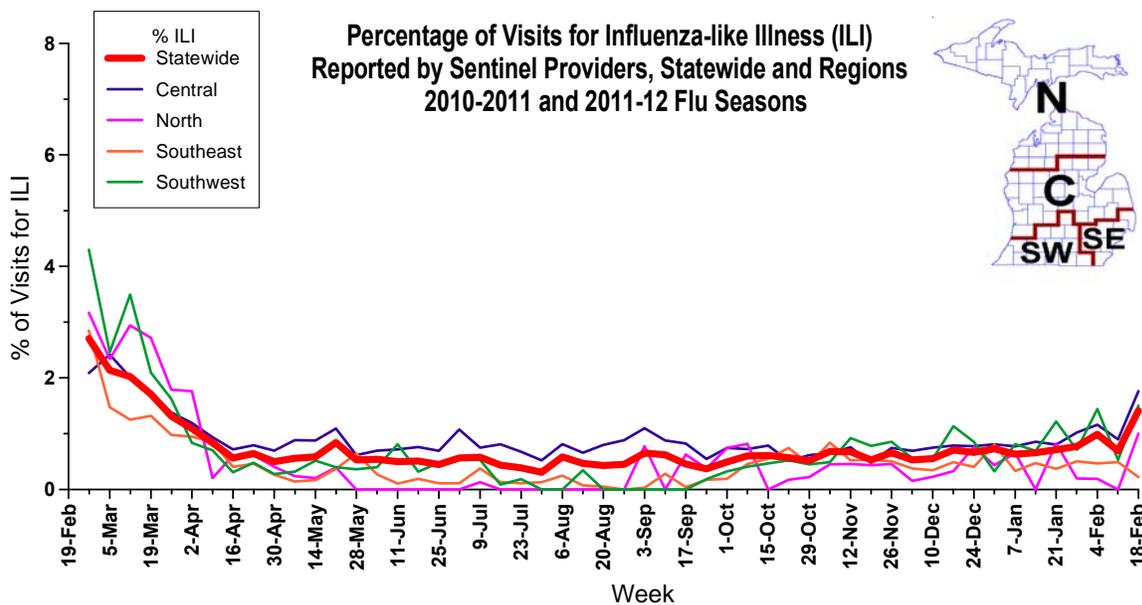
Influenza Surveillance Reports

Michigan Disease Surveillance System: MDSS data for the week ending February 18th indicated that both individual and aggregate influenza cases remained steady. Individual reports are moderately lower than levels seen during the same time last year, while aggregate reports are slightly lower.

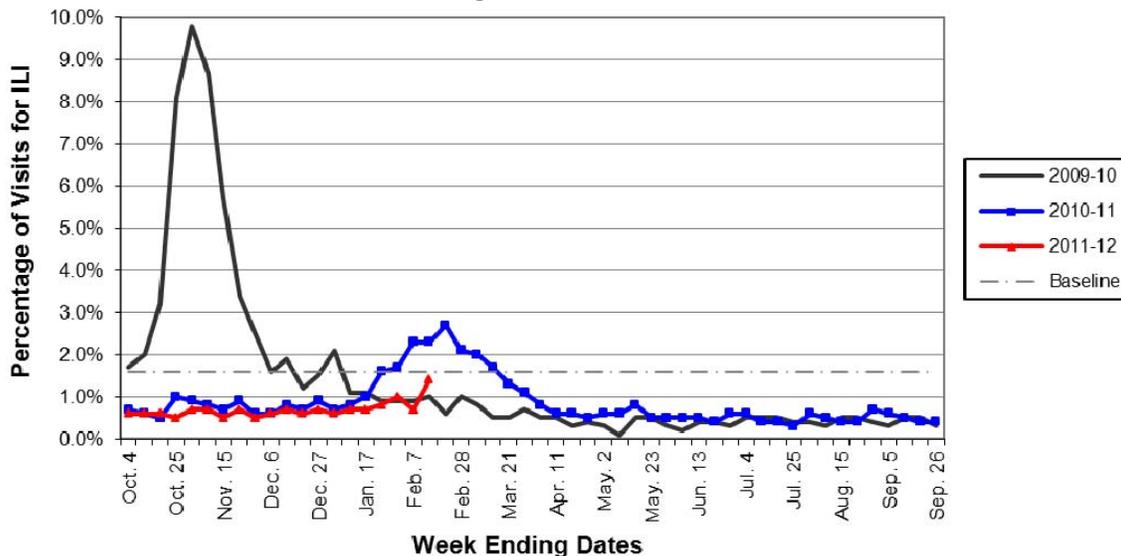
Emergency Department Surveillance: Compared to levels from the week prior, emergency department visits from both constitutional and respiratory complaints moderately increased. Both categories have experienced steady and sustained increases over the past month. Constitutional complaints are moderately lower than levels reported during the same time period last year, while respiratory complaints are slightly lower. In the past week, there were eight constitutional alerts in the SW(1), C(4) and N(3) Influenza Surveillance Regions and two respiratory alerts in the C(2) Region.

Sentinel Provider Surveillance (as of February 23): During the week ending February 18, 2012, the proportion of visits due to influenza-like illness (ILI) increased to 1.4% overall; this is below the regional baseline of 1.6%. A total of 112 patient visits due to ILI were reported out of 7,963 office visits. Twenty-seven sentinel sites provided data for this report. Activity increased in three surveillance regions: Central (1.8%), North (1.0%) and Southwest (1.5%); activity decreased in the remaining surveillance region: Southeast (0.2%). Please note these rates may change as additional reports are received.

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.



Percentage of Visits for Influenza-like Illness (ILI) Reported by the US Outpatient Influenza-like Illness Surveillance Network (ILINet): Michigan 2009-2012



Hospital Surveillance (as of February 18): The Influenza Hospitalization Surveillance Project provides population-based rates of severe influenza illness in Clinton, Eaton and Ingham counties. One lab-confirmed influenza hospitalization was reported during the week ending February 18, 2012. Due to changes in CDC FluSurvNet case definitions, one case previously reported in the catchment area is no longer considered a case. For the 2011-12 season, 2 adult influenza hospitalizations have been reported in the catchment area.

The MDCH Influenza Sentinel Hospital Network monitors influenza hospitalizations reported voluntarily by hospitals statewide. Seven hospitals (SE, SW, C, N) reported for the week ending February 18, 2012. Results are listed in the table below.

Age Group	Hospitalizations Reported During Current Week	Total Hospitalizations 2011-12 Season
0-4 years	0	5
5-17 years	2	3
18-49 years	1	6
50-64 years	2	4
≥65 years	1	1
Total	6	19

Laboratory Surveillance (as of February 18): During February 12-18, 61 influenza A/H3 (27SE, 2SW, 30C, 2N) and 1 influenza B (C) results were reported by the MDCH Bureau of Laboratories. In addition, confirmatory CDC testing on a previously reported seasonal A/H1N1 result from early February revealed a false positive result; therefore this result has been removed from the totals reported below. For the 2011-12 influenza season (starting October 2, 2011), MDCH has identified 251 influenza results:

- Influenza A(H3): 240 (106SE, 4SW, 104C, 26N)
- Influenza A(H1N1)pdm09: 5 (2SE, 2C, 1N)
- Influenza B: 6 (3SE, 1SW, 2C)
- Parainfluenza: 2 (1SE, 1C)
- Adenovirus: 1 (SE)

14 sentinel labs (SE, SW, C, N) reported for the week ending February 18, 2012. 10 labs (SE, SW, C) reported low or moderately increasing influenza A activity. 2 labs (SE) reported low levels of influenza B positives. 11 labs (SE, SW, C, N) reported increasing RSV activity, with several approaching high levels. 2 labs (SW, C) had sporadic parainfluenza activity. 2 labs (SE, SW) reported increasing hMPV positives. Most testing volumes are moderate with a few sites at high volumes.

Michigan Influenza Antigenic Characterization (as of February 23): For the 2011-12 season, four Michigan influenza B specimens have been characterized at MDCH BOL. Two influenza B specimens have been characterized as B/Brisbane/60/2008-like; this strain matches the influenza B component for the 2011-12 Northern Hemisphere influenza vaccine. Two influenza B specimens were characterized as B/Wisconsin/01/2010-like, which is from the influenza B lineage not included in the 2011-12 vaccine.

Michigan Influenza Antiviral Resistance Data (as of February 23): For the 2011-12 season, three Michigan influenza A(H1N1)pdm09 specimens have been tested for antiviral resistance at MDCH Bureau of Laboratories; all have tested negative for oseltamivir resistance.

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 February 23): No pediatric influenza-associated influenza mortalities have been reported to MDCH for the 2011-12 season.

CDC requires reporting of flu-associated pediatric deaths (<18 yrs), including pediatric deaths due to an influenza-like illness with lab confirmation of influenza or any unexplained pediatric death with evidence of an infectious process. Contact MDCH immediately for proper specimen collection. The MDCH protocol is at www.michigan.gov/documents/mdch/ME_pediatric_influenza_guidance_v2_214270_7.pdf.

Influenza Congregate Settings Outbreaks (as of February 23): Three respiratory outbreaks in long-term care facilities (1SW, 2C) were reported to MDCH during the past week; investigations are ongoing. Nine respiratory outbreaks (1SE, 2SW, 6C) have been reported to MDCH during the 2011-12 season; testing results are listed below.

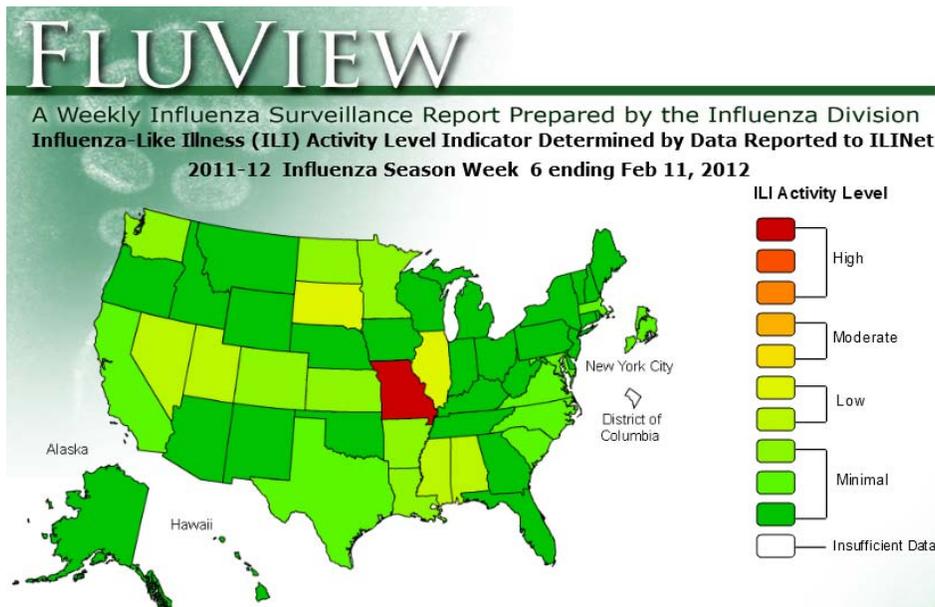
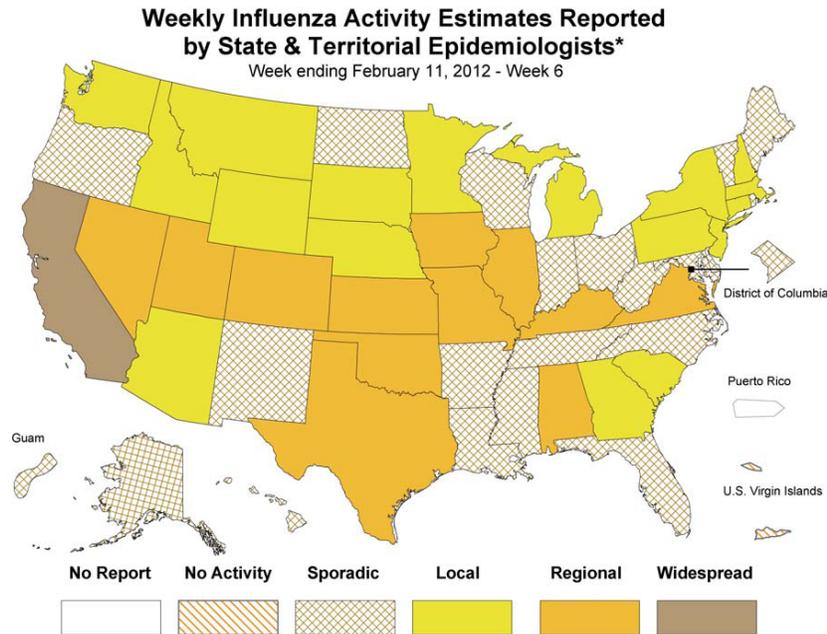
- Influenza A/H3: 1 (C)
- Human metapneumovirus: 1 (SW)
- Negative, pending or not tested: 7 (1SE, 1SW, 5C)

National (CDC [edited], February 17): During week 6 (February 5-11, 2012), influenza activity in the U.S. continued to increase. Of the 3,230 specimens tested by U.S. World Health Organization and National Respiratory and Enteric Virus Surveillance System collaborating laboratories and reported to CDC/Influenza Division, 500 (15.5%) were positive for influenza. The proportion of deaths attributed to P&I was below the epidemic threshold. One influenza-associated pediatric death was reported and was associated with an influenza B virus. The proportion of outpatient visits for influenza-like illness (ILI) was 1.9%, which is below the national baseline of 2.4%. Region 7 reported ILI above its region-specific baseline. One state experienced high ILI activity, 6 states experienced low ILI activity, New York City and 43 states experienced minimal ILI activity, and the District of Columbia had insufficient data. One state reported widespread geographic activity; 12 states reported regional influenza activity; 17 states reported local activity; the District of Columbia, Guam, and 20 states reported sporadic activity; the U.S. Virgin Islands reported no influenza activity, and Puerto Rico did not report.

The Influenza Surveillance Network conducts population-based surveillance for lab-confirmed influenza-related hospitalizations in children younger than 18 years of age (since the 2003-04 influenza season) and adults (since the 2005-06 season). Between October 1, 2011 and February 11, 2012, 266 laboratory-confirmed influenza-associated hospitalizations were reported at a rate of 0.97 per 100,000 population.

Among cases, 216 (81.2%) were influenza A, 41 (15.4%) were influenza B, and 2 (0.8%) were A and B co-infections; 7 (2.6%) had no virus type information. Among those with influenza A subtype information, 75 were H3N2 and 15 were 2009 H1N1. The most commonly reported underlying medical conditions among adults were chronic lung diseases, metabolic disorders and obesity. The most commonly reported underlying medical conditions in children were chronic lung diseases, asthma and neurologic disorders. However, more than one third of hospitalized children had no identified underlying medical conditions.

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



This map uses the proportion of outpatient visits to healthcare 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 on 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.

International (WHO [edited], February 17): Influenza activity in the temperate regions of the northern hemisphere remains low overall. It has continued to increase in the United States and Canada, though overall activity is low. Some countries of western Europe, North Africa, and northern China appear to have reached peak transmission but activity continues to increase in eastern Europe. The levels of both mild and severe disease have been relatively low compared to previous years in most areas reporting. Countries in the tropical zone reported low levels of activity with the exception of a few countries in the Americas and parts of southern Asia. The most commonly detected virus type or subtype throughout the

northern hemisphere temperate zone has been influenza A(H3N2) with the exception of Mexico, where A(H1N1)pdm09 is the predominant subtype circulating, and China and the surrounding countries which are reporting a predominance of influenza B. Notable differences have been reported in the distribution of viruses in severe cases and between age groups. In Canada, A(H1N1)pdm09 accounted for 27% of all influenza A viruses that have been subtyped in <5 year olds but only 5% of subtyped A viruses in cases over the age of 65 years. In Europe, A(H1N1)pdm09 was disproportionately found in cases admitted to hospital for severe acute respiratory infection compared to outpatient cases of influenza-like illness (13-20% vs. ~1.5% respectively). Nearly all influenza A viruses detected were antigenically related to the viruses contained in the current northern hemisphere trivalent vaccine. Oseltamivir resistance continues to be observed at very low levels and has not increased notably over levels reported in previous seasons.

Countries in the temperate zone of the northern hemisphere

Although persistent upward trends have been reported across the temperate region, it appears that some countries are reaching their peak, including a few countries of western Europe and all of North Africa. The season looks mild by all indicators.

In Canada, overall influenza activity increased in the third week of January but remained low in some areas of the country. The national consultation rate for influenza-like illness (ILI) in Canada decreased slightly but the proportion of samples testing positive increased to 3.4%. Seven regions reported localized activity and 16 regions reported sporadic activity. Eight outbreaks were reported, three in hospitals and five in long term care facilities, an increase from previous weeks. The national consultation rate for ILI and general level of influenza activity is mid to low range compared to this time period in previous years. Eighteen influenza-associated hospitalizations were reported this week (three pediatric and 15 adult). Since the start of the season, 38% of all pediatric influenza hospitalizations have occurred in children under the age of two years, while 45% of all adult hospitalizations have occurred in patients aged >65 years. In that time frame, 79% of laboratory confirmed cases were influenza A and 21% B; of the influenza A viruses that were subtyped, 90% have been A(H3N2). Notably, the distribution of virus types and subtypes has not been uniform across all age groups. Fifty-three percent of all laboratory confirmed A(H1N1)pdm09 cases, and 36% of all laboratory confirmed influenza B cases, have been in patients aged <5 years. Influenza A(H1N1)pdm09 accounted for 33% of all A viruses that have been subtyped in <5 years old but only 3% of subtyped A viruses in cases over the age of 65 years. All influenza A viruses characterized this season in Canada are antigenically related to the viruses contained in the current northern hemisphere trivalent influenza vaccine; however, only 21 of 35 (60%) B viruses are antigenically related to the vaccine strain contained in the current vaccine. The other 14 B viruses were antigenically related to the reference virus B/Wisconsin/01/2010-like, which belongs to the Yamagata lineage. All 79 influenza A viruses tested for antiviral resistance were susceptible to oseltamivir and zanamivir.

Nationally in the United States of America (USA), ILI consultations were low (1.4%) and remained below the national baseline level (2.4%). The percentage of samples positive for influenza increased to 4.9% but was as high as 14% in one region. ILI activity was reported to be low or minimal in all states. The proportion of deaths due to pneumonia and influenza reported in the 122 cities sentinel surveillance system has reached the epidemic threshold for the first time since the start of the season after being predominantly below the seasonal baseline for several weeks. Since October 2011, 166 laboratory-confirmed influenza hospitalizations were reported. Among these cases, 120 (72.3%) were influenza A, 38 (22.9%) were influenza B, and 2 (1.2%) were A and B co-infections; 6 (3.6%) had no virus type information. Among the 52 of hospitalized cases with influenza A subtype information, 48 (92.3%) were A(H3N2) and four (7.7%) were A(H1N1)pdm09. The most commonly reported underlying medical conditions among adults hospitalized with influenza infection were chronic lung diseases, asthma and obesity. The most common underlying medical conditions in children hospitalized with influenza infection were neurologic disorders and obesity. More than a third of hospitalized children had no identified underlying medical condition. In the USA, the circulating virus is almost exclusively A(H3N2), except in 6 States (Arkansas, Louisiana, New Mexico, Oklahoma and Texas) where A(H1N1)pdm09 has been predominant in the past 3 weeks. Ninety-nine percent of A(H3N2) and 97% of A(H1N1)pdm09 viruses characterized were antigenically related to viruses contained in the current influenza vaccine. 14 of the 28 B viruses tested belong to the Victoria lineage and were characterized as B/Brisbane/60/2008-like, the B component of the 2011-2012 northern hemisphere vaccine. All viruses tested since 01 October 2011 have been susceptible to the neuraminidase inhibitor antiviral medications oseltamivir and zanamivir.

In contrast to Canada and the USA, in Mexico the majority of all lab-confirmed cases since late December 2011 were A(H1N1)pdm09. Localized outbreaks of A(H1N1)pdm09 have also been detected in parts of the country, mostly in the southern States. The Ministry of Health has reported that the situation there is similar to previous seasons and that there is no evidence that the virus has changed in its behavior.

In Europe, influenza activity appeared to be leveling off in Spain and Italy, suggesting the season may now be peaking in a few countries in the west of Europe. In eastern Europe, Russia, Romania and Bulgaria have seen a trend of increasing activity over recent weeks, though overall activity was still relatively low. All-cause mortality in the 20 western European countries that are partners in the European Mortality Monitoring Project remains low compared to previous years at this time of the season. In the 5th week of 2012, 37% of samples from sentinel outpatient clinics tested positive for influenza in Europe, a continued increase from recent weeks. Of these, 96% were influenza A and 4% were influenza B; 98% of A specimens subtyped were A(H3N2). Hospitalizations due to severe acute respiratory infection (SARI) continue to be relatively stable with most cases being in the group aged 0-4 years. 19% of specimens from hospitalized cases of severe acute respiratory infections (SARI) tested positive for influenza, all type A. The distribution of virus types and subtypes in SARI cases has been reported to be different from that in ILI cases. In 159 SARI cases with subtype information from western Europe, 80% were associated with A(H3N2) infection, 13% with A(H1N1)pdm09 and 7% with type B viruses. From eastern Europe, 150 respiratory specimens were collected from SARI patients, of which 25 were subtyped: 20 (80%) as A(H3N2) and 5 (20%) as A(H1N1)pdm09. Twelve countries have characterized 103 influenza viruses antigenically. All of the A viruses characterized have been antigenically related to the viruses in the current vaccine; 4 of 8 type B viruses characterized were of the Victoria lineage included in the vaccine and the other 4 were of the Yamagata lineage. None of the 15 A(H1N1)pdm09, 46 A(H3N2) and 7 type B viruses tested for neuraminidase inhibitor susceptibility have been resistant since the start of the season.

The northern Africa and eastern Mediterranean regions have begun to report a decreasing trend in numbers of positive influenza specimens though virus detection remained widespread. As in Europe, A(H3N2) was the predominant subtype detected, accounting for nearly all of the subtyped viruses.

In northern China, both the percentage of outpatient visits that were due to ILI and the proportion of specimens testing positive for influenza (13%) increased since the last report. In contrast to other reporting regions, influenza type B virus is the predominant type across China. In the first week of 2012, 89% of all viruses subtyped in northern China were influenza type B. The Republic of Korea and Japan have reported a persistent increase in numbers of influenza positive specimens in recent weeks, predominantly A(H3N2). Influenza is spreading nationally across the Republic of Korea.

Countries in the tropical zone

Circulation of influenza A(H1N1)pdm09 and A(H3N2) has been reported in Costa Rica Colombia, and Ecuador. Influenza A(H1N1)pdm09 has been the most common virus detected in Colombia and A(H3N2) slightly more common in Costa Rica and Ecuador.

In sub-Saharan Africa, only sporadic detections were reported.

Overall, the influenza activity in tropical Asia remained low. Influenza B circulation in India and South China has continued to decrease. In South China the percentage of hospital visits for ILI has decreased to 3.4%, lower compared to recent weeks and at the same time last year. Influenza type B detections increased in Lao People's Democratic Republic, Bhutan and Singapore.

Countries in the temperate zone of the southern hemisphere

In temperate countries of the southern hemisphere, influenza activity is at inter-seasonal levels. The previously noted persistent inter-seasonal transmission in Chile, Paraguay and Australia has diminished and virus detections are now sporadic in these countries.

The entire WHO report is available online at www.who.int/influenza/surveillance_monitoring/updates/latest_update_GIP_surveillance/en/index.html.

MDCH reported **REGIONAL ACTIVITY** to the CDC for the week ending February 18, 2012.

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.

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.

International, Human (WHO [edited], February 21): The Ministry of Health of Indonesia has announced one new confirmed case of human infection with avian influenza A(H5N1) virus. The case is a 19 year-old female from Banten Province. She developed symptoms on 8 February 2012, was hospitalized on 12 February 2012 and died on 13 February 2012. Epidemiological investigation is ongoing by the Ministries of Health and Agriculture. Of the 185 cases confirmed to date in Indonesia, 153 have been fatal.

International, Human (WHO [edited], February 22): The Ministry of Health and Population of Egypt has notified WHO of a new case of human infection with avian influenza A (H5N1) virus. The case is a 45 year-old female from Menofia governorate. She developed symptoms on 10 February 2012, received oseltamivir treatment on 17 February 2012 and is still recovering. The case was laboratory confirmed by the Central Public Health Laboratories; a National Influenza Center of the WHO Global Influenza Surveillance Network on 18 February 2012. Epidemiological investigation into the source of infection indicates that the case had exposure to backyard poultry. Of the 160 cases confirmed to date in Egypt, 55 have been fatal.

International, Research (Canadian Medical Association Journal press release, February 21): Vaccinating pregnant women against the influenza virus appears to have a significant positive effect on birth weight in babies, according to a study published in CMAJ (*Canadian Medical Association Journal*).

The study, a randomized controlled trial involving 340 healthy pregnant women in Bangladesh in the third trimester, looked at the effect of immunization with the influenza vaccine on babies born to vaccinated mothers. It was part of the Mother'sGift project looking at the safety and efficacy of pneumococcal and influenza vaccines in pregnant women in Bangladesh. The participants were divided into two groups, one with 170 women who received the influenza vaccine, and the second who received the pneumococcal vaccine as a control. Researchers compared the weight of babies born in two periods, one in which there was circulation of an influenza virus and one with limited circulation.

Babies that are small for their gestational age are at increased risk of health and other issues over their lives.

The researchers found that there were fewer babies who were small for their gestational age born to mothers in the influenza vaccine group when the virus was circulating, with 25.9% who were small compared with 44.8% in the control group. When the virus was dormant, the proportion of small-for-gestational-age births was similar in both groups. During the period with circulating influenza virus, the mean birth weight was 3178 g in the influenza vaccine group and 7% higher than 2978 g in the control group. The rate of premature births was lower in the influenza vaccine group as well.

"We found that immunization against influenza during pregnancy had a substantial effect on mean birth weight and the proportion of infants who were small for gestational age," writes Dr. Mark Steinhoff, Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio, with coauthors. "Our data suggest that the prevention of infection with seasonal influenza in pregnant women by vaccination can influence fetal growth," state the authors.

The researchers calculate that 10 maternal influenza vaccinations given year-round prevented one small-for-gestational-age birth, dropping to 6 vaccinations during the period in which the influenza virus was circulating.

The study was conducted by a team of US and Bangladeshi researchers from the Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio; Johns Hopkins University, Baltimore, Maryland; Emory University, Atlanta, Georgia; the International Centre for Diarrheal Disease Research, Dhaka, Bangladesh; and the Centers for Disease Control and Prevention, Atlanta, Georgia.

The authors suggest that if further research supports their findings, adding an influenza vaccine to routine vaccination programs during pregnancy could help children have a better start in life.

The press release is available at http://www.eurekalert.org/pub_releases/2012-02/cmaj-ivo021512.php.

International, Poultry (OIE [edited], February 18): Highly pathogenic avian influenza H5N1; Vietnam

Outbreak 1: Duy Trinh, Duy Trinh, Duy Xuyen, QUANG NAM

Date of start of the outbreak: 13/02/2012; Outbreak status: Continuing; Epidemiological unit: Village
Species: Birds; Susceptible: 5050; Cases: 878; Deaths: 106; Destroyed: 4944

International, Poultry (OIE [edited], February 21): Highly pathogenic avian influenza H5N1; Vietnam

Outbreak 1: Dung Liet, Dung Liet, Yen Phong, BAC NINH

Date of start of the outbreak: 12/02/2012; Outbreak status: Continuing; Epidemiological unit: Village
Species: Birds; Susceptible: 300; Cases: 200; Deaths: 100; Destroyed: 200

Outbreak 2: Chau Phong, Chau Phong, Que Vo, BAC NINH

Date of start of the outbreak: 17/02/2012; Outbreak status: Continuing; Epidemiological unit: Village
Species: Birds; Susceptible: 192; Cases: 90; Deaths: 50; Destroyed: 142

International, Wild Birds (OIE [edited], February 17): High path avian influenza H5N1; Hong Kong

Outbreak 1: No. 14 Lane 2 Tung Tau Wai San Tsuen, Yuen Long, HONG KONG

Date of start of the outbreak: 07/02/2012; Outbreak status: Resolved

Species: Wild species; Cases: 1; Deaths: 1

Affected population: An Oriental Magpie Robin (*Copsychus saularis*) was collected on 7 February 2012 at Yuen Long. The Oriental Magpie Robin is a common local resident in Hong Kong.

Michigan Wild Bird Surveillance (USDA, as of February 23): For the 2011 season (April 1, 2011-

March 31, 2012), highly pathogenic avian influenza H5N1 has not been recovered from 7 Michigan samples or 408 samples tested nationwide. For more information, visit <http://www.nwhc.usgs.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.

For questions or to be added to the distribution list, please contact Susan Peters at peterss1@michigan.gov

Contributors

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Table. H5N1 Influenza in Humans – As of February 22, 2012. http://www.who.int/influenza/human_animal_interface/EN_GIP_20120222CumulativeNumberH5N1cases.pdf. Downloaded 2/22/2012. Cumulative lab-confirmed cases reported to WHO. Total cases includes deaths.

Country	2003-2005		2006		2007		2008		2009		2010		2011		2012		Total	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Azerbaijan	0	0	8	5	0	0	0	0	0	0	0	0	0	0	0	0	8	5
Bangladesh	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	3	0
Cambodia	4	4	2	2	1	1	1	0	1	0	1	1	8	8	1	1	19	17
China	9	6	13	8	5	3	4	4	7	4	2	1	1	1	1	1	42	28
Djibouti	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Egypt	0	0	18	10	25	9	8	4	39	4	29	13	39	15	2	0	160	55
Indonesia	20	13	55	45	42	37	24	20	21	19	9	7	12	10	2	2	185	153
Iraq	0	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	3	2
Lao PDR	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	2	2
Myanmar	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
Nigeria	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1
Pakistan	0	0	0	0	3	1	0	0	0	0	0	0	0	0	0	0	3	1
Thailand	22	14	3	3	0	0	0	0	0	0	0	0	0	0	0	0	25	17
Turkey	0	0	12	4	0	0	0	0	0	0	0	0	0	0	0	0	12	4
Vietnam	93	42	0	0	8	5	6	5	5	5	7	2	0	0	2	2	121	61
Total	148	79	115	79	88	59	44	33	73	32	48	24	62	34	8	6	586	346