



MI Flu Focus

Influenza Surveillance Updates
Bureaus of Epidemiology and Laboratories



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Surveillance and Infectious Disease Epidemiology

May 31, 2012
Vol. 9; No. 22

Current Influenza Activity Levels:

- **National:** During May 13-19, influenza activity declined nationally and in most regions, but remained elevated in some areas of the U.S.

Updates of Interest

- **International:** Cambodia reports a new human case of avian influenza H5N1

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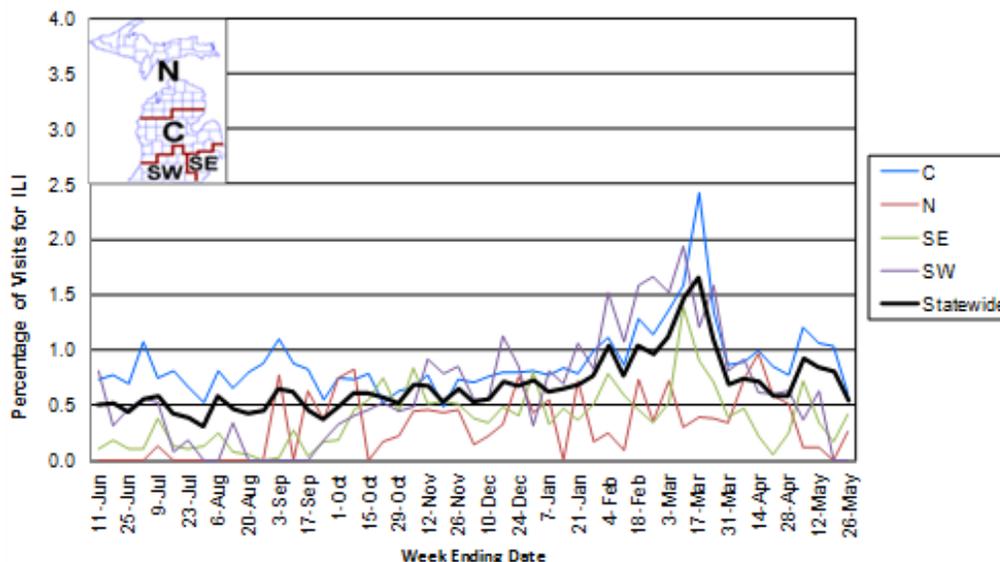
Influenza Surveillance Reports

Michigan Disease Surveillance System (as of May 31): MDSS data for the week ending May 26th indicated that compared to levels from the previous week, both individual and aggregate reports decreased. Individual reports are slightly higher, while aggregate reports are similar, than levels seen during the same time last year.

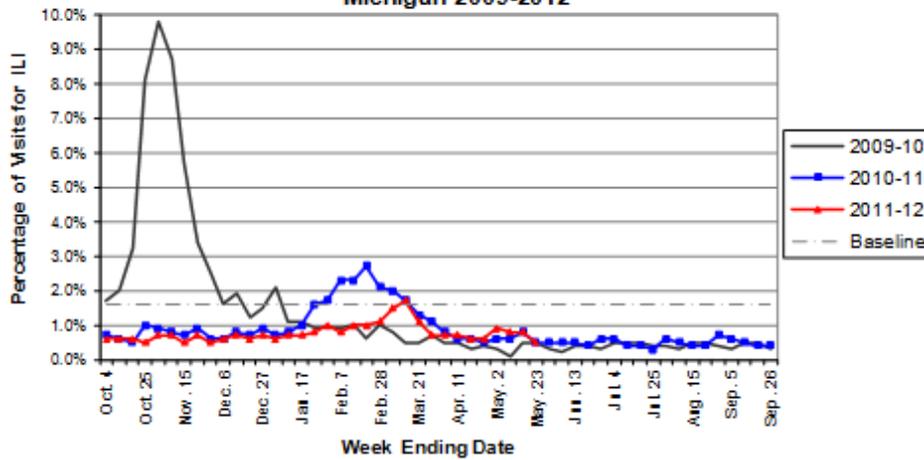
Emergency Department Surveillance (as of May 31): Compared to levels from the week prior, emergency department visits from constitutional complaints remained steady, while respiratory complaints slightly decreased. Both constitutional and respiratory complaints have returned to levels seen at the beginning of last fall. Constitutional complaints are similar to levels reported during the same time period last year, while respiratory complaints are slightly lower. In the past week, there were six constitutional alerts in the SW(3), C(2) and N(1) Influenza Surveillance Regions and four respiratory alerts in the SW(1), C(2) and N(1) Regions.

Sentinel Provider Surveillance (as of May 31): During the week ending May 26, 2012, the proportion of visits due to influenza-like illness (ILI) decreased to 0.5% overall; this is below the regional baseline of (1.6%). A total of 46 patient visits due to ILI were reported out of 8,498 office visits. Twenty-five sentinel sites provided data for this report. ILI activity increased in two surveillance regions: North (0.3%) and Southeast (0.4%), decreased in one surveillance region: Central (0.6%); and remained the same in the Southwest (0.0%). Please note these rates may change as additional reports are received.

**Percentage of Visits for Influenza-like Illness (ILI)
Reported by Sentinel Providers, Statewide and Regions
2010-2011 and 2011-12 Flu Seasons**



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



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 May 26): The Influenza Hospitalization Surveillance Project provides population-based rates of severe influenza illness in Clinton, Eaton and Ingham counties. For the 2011-12 season, 27 influenza hospitalizations (9 adult, 18 pediatric) have been reported in the catchment area.

The MDCH Influenza Sentinel Hospital Network monitors influenza hospitalizations reported voluntarily by hospitals statewide. 4 hospitals (SE, SW) reported for the week ending May 26, 2012. Results are listed in the table below.

Age Group	Hospitalizations Reported During Current Week	Total Hospitalizations 2011-12 Season
0-4 years	0	21
5-17 years	0	23
18-49 years	0	32
50-64 years	0	28
≥65 years	0	43
Total	0	147

Laboratory Surveillance (as of May 26): During May 20-26, 6 influenza A/H3 (5SE, 1SW), and 8 influenza B (3SE, 4SW, 1C) results were reported by MDCH BOL. For the 2011-12 season (starting October 2, 2011), MDCH has identified 1147 influenza results:

- Influenza A(H3): 1043 (605SE, 90SW, 301C, 47N)
- Influenza A(H1N1)pdm09: 31 (21SE, 3SW, 5C, 2N)
- Influenza B: 72 (28SE, 28SW, 11C, 5N)
- Influenza A(H3) and B co-infection: 1 (SE)
- Parainfluenza: 2 (1SE, 1C)
- Adenovirus: 3 (3SE)
- RSV: 4 (1SW, 1C, 2N)

8 sentinel labs (SE, SW, C, N) reported for the week ending May 26, 2012. 1 lab (C) reported sporadic influenza A activity. 2 labs (C) had sporadic influenza B positives. 4 labs (SE, SW, C) reported sporadic RSV activity. 1 lab (SW) had sporadic parainfluenza activity. Testing volumes are at low levels.

Michigan Influenza Antigenic Characterization (as of May 31): For the 2011-12 season, 45 Michigan influenza B viruses have been characterized at MDCH. 8 viruses are B/Brisbane/60/2008-like (included in the 2011-12 influenza vaccine). 37 are B/Wisconsin/01/2010-like (not included in the 2011-12 vaccine).

Michigan Influenza Antiviral Resistance Data (as of May 31): For the 2011-12 season, 23 Michigan influenza A(H1N1)pdm09 specimens and 92 influenza A(H3) specimens have been tested for antiviral resistance at MDCH Bureau of Laboratories; all have tested negative for oseltamivir resistance. 11 Michigan influenza A(H3N2), 2 influenza A(H1N1)pdm09, and 4 influenza B specimens have been tested for antiviral resistance at the CDC; all have tested negative for oseltamivir and zanamivir 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 May 31): No pediatric influenza-associated influenza mortalities have been reported to MDCH for the 2011-12 season.

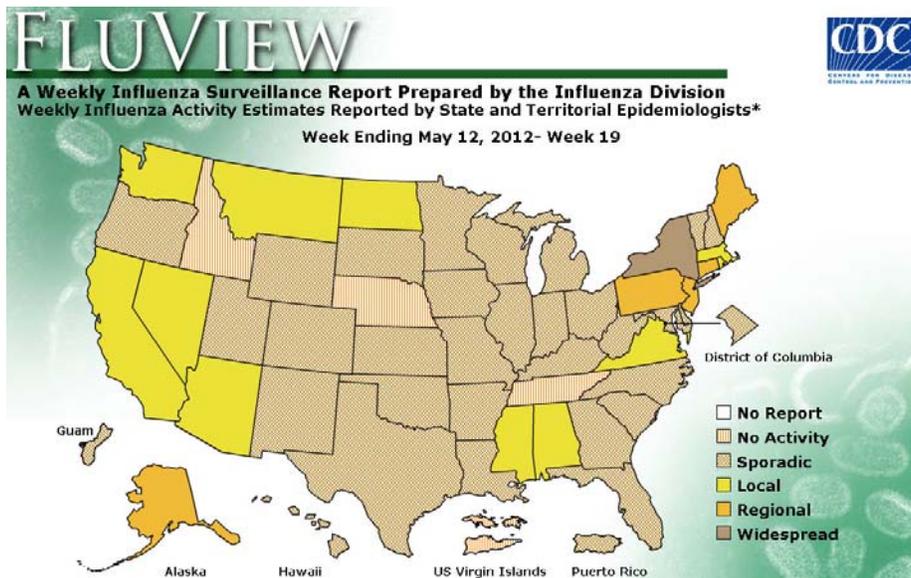
CDC requires reporting of flu-associated pediatric deaths (<18 yrs), including pediatric deaths due to an influenza-like illness with lab confirmation of influenza or any unexplained pediatric death with evidence of an infectious process. Contact MDCH immediately for proper specimen collection. The MDCH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

Influenza Congregate Settings Outbreaks (as of May 31): One outbreak from a SW long-term care facility was reported during the previous week; an investigation is ongoing. 29 respiratory outbreaks (6SE, 3SW, 19C, 1N) have been reported to MDCH during the 2011-12 season; testing results are listed below.

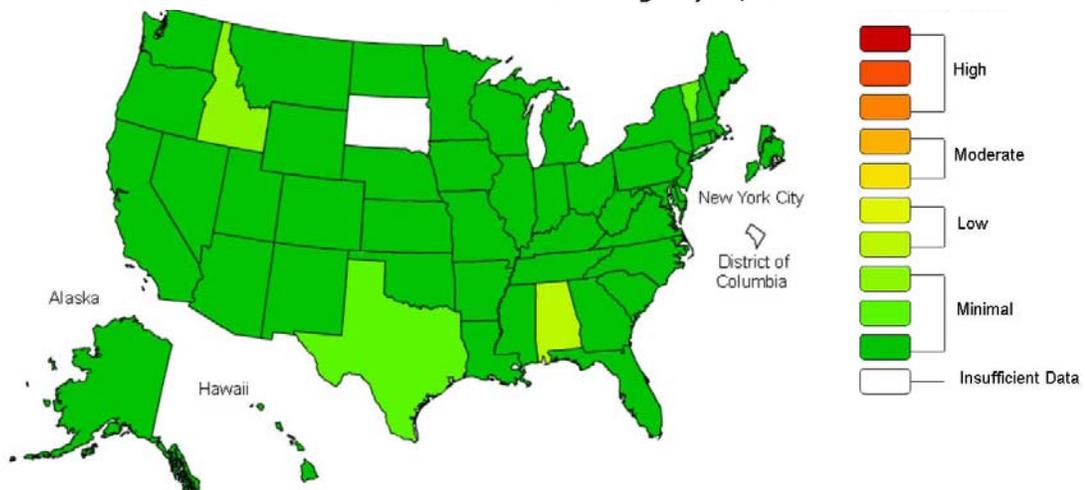
- Influenza A/H3: 14 (4SE, 10C)
- Influenza A: 2 (2C)
- Human metapneumovirus: 1 (SW)
- Negative or not tested: 12 (1SE, 2SW, 8C, 1N)

National (CDC [edited], May 25): During week 20 (May 13-19, 2012), influenza activity declined nationally and in most regions, but remained elevated in some areas of the U.S. Of the 2,054 specimens tested by U.S. WHO and NREVSS collaborating laboratories and reported to CDC/Influenza Division, 286 (13.9%) were positive for influenza. The proportion of deaths attributed to P&I was below the epidemic threshold. Two influenza-associated pediatric deaths were reported. One was associated with a seasonal influenza A (H3) virus and one was associated with an influenza B virus. The proportion of outpatient visits for influenza-like illness (ILI) was 1.0%, which is below the national baseline of 2.4%. All regions reported ILI below region-specific baseline levels. 1 state experienced low ILI activity; New York City and 48 states experienced minimal ILI activity, and the District of Columbia and 1 state had insufficient data to calculate ILI activity. 1 state reported widespread geographic activity; 2 states reported regional activity; 8 states reported local activity; the District of Columbia, Guam, Puerto Rico, and 30 states reported sporadic activity; the U.S. Virgin Islands and 8 states reported no activity, and one state did not report.

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



Influenza-Like Illness (ILI) Activity Level Indicator Determined by Data Reported to ILINet
 2011-12 Influenza Season Week 20 ending May 19, 2012



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], May 25): The 2011-2012 influenza season is coming to an end in most northern temperate regions of the world. Countries in the southern hemisphere temperate zone are still at low or inter-seasonal levels, though some very small increases in detections have been reported in Chile. Some activity persists in sub-Saharan Africa.

Throughout the 2011-12 influenza season, different viruses have predominated in different parts of the world in the northern hemisphere. In North America, Canada had a slight predominance nationally of influenza B over A(H3N2) (67% vs. 33% respectively) particularly later in the season but the distribution was not uniform across the country. In the United States of America (USA), the proportions were reversed, and A(H3N2) was more common. The season in Mexico was dominated by A(H1N1)pdm09. In Europe, the large majority of influenza viruses have been influenza A(H3N2) with only very small numbers of A(H1N1)pdm09 and B. In Asia, northern China and Mongolia reported mostly influenza B early in the season with A(H3N2) appearing later, and this sequence was reversed in the Republic of Korea and Japan where, A(H3N2) was predominant in the beginning and type B appeared later.

Early in the season, most viruses tested were antigenically related to those found in the current trivalent seasonal vaccine. However, by mid-season, divergence was noted in both the USA and Europe in the A(H3N2) viruses tested. Significant numbers of A(H3N2) viruses tested in recent months have shown reduced cross reactivity with the 2011-12 vaccine virus. Influenza B virus detections have been both from the Victoria and Yamagata lineages with the former slightly more common in China and parts of Europe.

Resistance to neuraminidase inhibitors has been low or undetectable throughout the season; however, a slight increase in levels of resistance to oseltamivir has been reported in influenza A(H1N1)pdm09 isolates in the USA. Most (11/16) of these oseltamivir resistant cases have been from the state of Texas, where influenza A(H1N1)pdm09 has been the most common virus circulating.

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

Weekly reporting to the CDC has ended for the 2011-2012 influenza season.

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.

National, Research (CIDRAP, May 24): A study from the University of California-Los Angeles (UCSA) suggests that avian and swine influenza infections are rare in people who handle migratory birds. A UCLA team conducted a serologic survey of individuals with occupational or recreational exposures to migratory birds and used a questionnaire to assess behavioral risk factors, according to their report in the *Journal of Clinical Virology*. Of 401 people tested, the team found only 1 who showed evidence of a past infection, which involved an avian H5N2 virus. The report says this is the first known human infection with this subtype linked to wild rather than domestic birds. No evidence of co-infections with avian and swine flu viruses was found. The authors looked at exposure to songbirds, waterfowl, and shorebirds; the bird handlers were exposed to songbirds four times as often as to the other two types.

The abstract is available online at <http://www.sciencedirect.com/science/article/pii/S1386653212001734>.

International, Human (WHO [edited], May 29): The Ministry of Health of the Kingdom of Cambodia has announced a confirmed case of human infection with avian influenza A(H5N1) virus. The case was a 10 years old female from Kampong Speu Province. She developed symptoms on 20 May 2012 and after initial treatment at the village was eventually admitted to the hospital on 25 May with symptoms of fever and shortness of breath. Infection with avian influenza A(H5N1) virus was confirmed by Institute Pasteur

du Cambodge on 26 May 2012, however, despite intensive medical care, she died on 27 May. There are reports of recent deaths among poultry in her village and the patient prepared sick chicken for food prior to becoming sick. The girl is the 21st person in Cambodia to become infected with A(H5N1) virus and 19 have died from the disease. The National and local Rapid Response Teams are conducting outbreak investigation and response following the national protocol. In addition, a public health campaign is being conducted in the village to inform families on how to protect themselves from contracting avian influenza.

International, Swine Research (CIDRAP, May 30): A serologic study of Cambodian pigs found for the first time that exposure to human influenza A is relatively common in the country's swine, researchers reported yesterday in *Influenza and Other Respiratory Viruses*. The group from Cambodia's Pasteur Institute based its findings on an analysis of 1,147 blood samples obtained from pigs going through a slaughterhouse in Phnom Penh from 2006 to 2010. They noted that most Cambodian swine are raised on small farms in proximity to humans and other animal species. So far, swine influenza viruses have never been isolated in Cambodia, and only rarely in surrounding countries. Antibodies against influenza A were detected in 14.9% of samples. The 2009 pandemic H1N1 virus was found after the pandemic virus reached Cambodia and was the most frequently found virus, peaking in 2010, followed by seasonal H1N1 and H3N2 subtypes, which peaked in 2008. Researchers found that some of the pigs had been exposed to more than one human flu virus, a factor they said could lead to reassortment events that could produce new pathogenic variants. Tests on 150 random samples found no evidence of H5N1 avian influenza exposure. The investigators concluded that more systematic surveillance systems are needed to monitor influenza A viruses on farms rather than just slaughterhouses.

The abstract is online at <http://onlinelibrary.wiley.com/doi/10.1111/j.1750-2659.2012.00382.x/abstract>.

Michigan Wild Bird Surveillance (USDA, as of May 31): For the 2012 season (April 1, 2012-March 31, 2013), no samples have been tested for highly pathogenic avian influenza H5N1. For more information, visit <http://www.nwhc.usgs.gov/ai/>. To learn about avian influenza surveillance in wild birds or to report dead waterfowl, go to the 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 May 29, 2012. http://www.who.int/influenza/human_animal_interface/EN_GIP_20120529_CumulativeNumberH5N1cases.pdf. Downloaded 5/29/2012. 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	3	0	6	0
Cambodia	4	4	2	2	1	1	1	0	1	0	1	1	8	8	3	3	21	19
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	9	5	167	60
Indonesia	20	13	55	45	42	37	24	20	21	19	9	7	12	10	6	6	189	157
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	4	2	123	61
Total	148	79	115	79	88	59	44	33	73	32	48	24	62	34	26	17	604	357