



MI Flu Focus

Influenza Surveillance Updates
Bureaus of Epidemiology and Laboratories



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Surveillance and Infectious Disease Epidemiology

May 17, 2012
Vol. 9; No. 20

Current Influenza Activity Levels:

- **Michigan:** Sporadic activity
- **National:** During April 29-May 5, U.S. activity declined nationally and in most regions, but remained elevated in some areas

Updates of Interest

- **Research:** Only 0.4% of poultry workers developed antibodies when exposed to an H5N1 avian influenza outbreak

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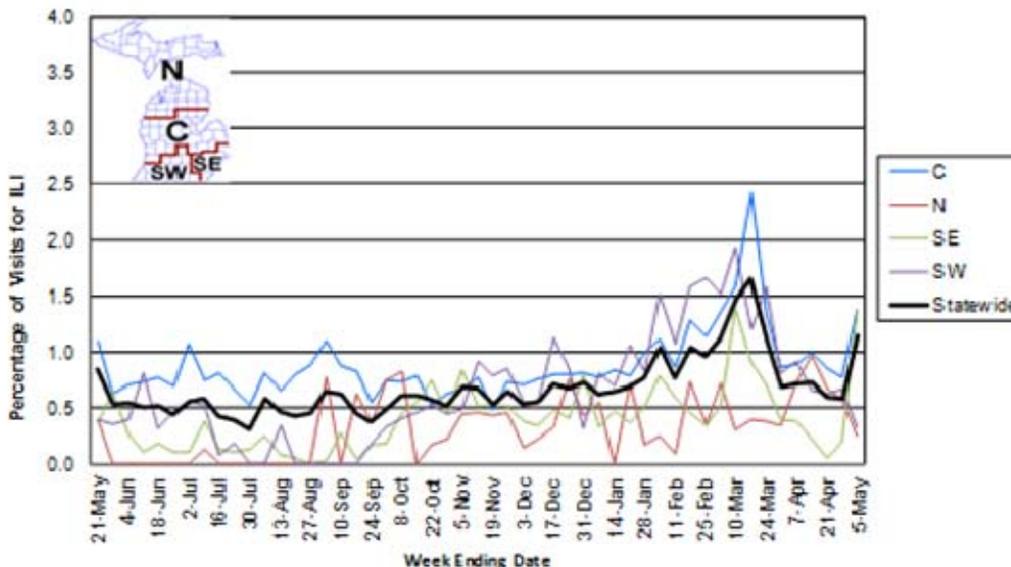
Influenza Surveillance Reports

Michigan Disease Surveillance System (as of May 17): MDSS data for the week ending May 12th indicated that compared to levels from the previous week, individual reports increased slightly, while aggregate reports remained steady. Individual reports are higher, while aggregate reports are similar, than levels seen during the same time last year.

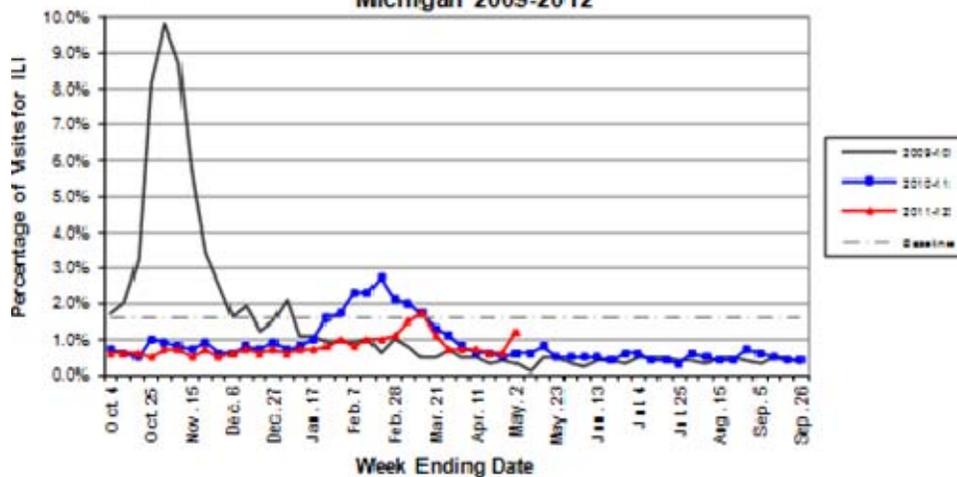
Emergency Department Surveillance (as of May 17): Compared to levels from the week prior, emergency department visits from both constitutional and respiratory complaints slightly decreased. Constitutional complaints are similar to levels reported during the same time period last year, while respiratory complaints are slightly lower. In the past week, there were 2 constitutional alerts in the C(1) and N(1) Influenza Surveillance Regions and 4 respiratory alerts in the C(3) and N(1) Regions.

Sentinel Provider Surveillance (as of May 10): During the week ending May 5, 2012, the proportion of visits due to influenza-like illness (ILI) increased to 1.2% overall; this is below the regional baseline of (1.6%). A total of 87 patient visits due to ILI were reported out of 7,565 office visits. Twenty-six sentinel sites provided data for this report. ILI activity increased in two surveillance regions: Central (1.4%) and Southeast (1.4%); and decreased in the remaining two surveillance regions: North (0.3%) and Southwest (0.3%). 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 12): The Influenza Hospitalization Surveillance Project provides population-based rates of severe influenza illness in Clinton, Eaton and Ingham counties. No lab-confirmed influenza hospitalizations were reported during the week ending May 12, 2012. 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 12, 2012. Results are listed in the table below. Total hospitalizations were adjusted to reflect amended reports from past weeks.

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	31
50-64 years	0	28
≥65 years	0	43
Total	0	146

Laboratory Surveillance (as of May 12): During May 6-12, 7 influenza A/H3 (3SE, 1SW, 3C), 1 influenza A/H1N1 2009pdm (SE) and 2 influenza B (1SW, 1C) results were reported by MDCH BOL. For the 2011-12 season (starting October 2, 2011), MDCH has identified 1118 influenza results:

- Influenza A(H3): 1033 (600SE, 87SW, 299C, 47N)
- Influenza A(H1N1)pdm09: 31 (21SE, 3SW, 5C, 2N)
- Influenza B: 53 (25SE, 16SW, 10C, 2N)
- Influenza A(H3) and B co-infection: 1 (SE)
- Parainfluenza: 2 (1SE, 1C)
- Adenovirus: 3 (3SE)
- RSV: 4 (1SW, 1C, 2N)

10 sentinel labs (SE, SW, C, N) reported for the week ending May 12, 2012. 3 labs (SE, SW, C) reported influenza A activity, all of which had sporadic or low numbers. 4 labs (SE, SW, C) had low influenza B positives. 4 labs (SE, SW, C) reported sporadic RSV activity. 1 lab (SW) reported sporadic parainfluenza activity. 1 lab (SW) reported sporadic hMPV activity. Nearly all testing volumes are at low levels.

Michigan Influenza Antigenic Characterization (as of May 17): 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 17): 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 17): 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 17): One influenza A/H3 outbreak in a C Region long-term care facility was reported to MDCH during the previous week. 28 respiratory outbreaks (6SE, 2SW, 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: 11 (1SE, 1SW, 8C, 1N)

National (CDC [edited], May 11): During week 18 (April 29-May 5, 2012), influenza activity declined nationally and in most regions, but remained elevated in some areas of the United States. Of the 2,118 specimens tested by U.S. WHO and NREVSS collaborating laboratories and reported to CDC/Influenza Division, 291 (13.7%) 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 an influenza B virus and 1 was associated with an influenza A virus for which the subtype was not determined. The proportion of outpatient visits for influenza-like illness (ILI) was 1.4%, which is below the national baseline of 2.4%. All regions reported ILI below region-specific baseline levels. Two states experienced low ILI activity; New York City and 48 states experienced minimal ILI activity, and the District of Columbia had insufficient data to calculate ILI activity. Two states reported widespread geographic activity; 8 states reported regional influenza activity; 12 states reported local activity; the District of Columbia, Puerto Rico, and 28 states reported sporadic activity, and Guam and the U.S. Virgin Islands reported no influenza activity.

**Neuraminidase Inhibitor Resistance Testing Results
on Samples Collected Since October 1, 2011.**

	Oseltamivir		Zanamivir	
	Virus Samples Tested (n)*	Resistant Viruses, Number (%)	Virus Samples Tested (n)	Resistant Viruses, Number (%)
Influenza A (H3N2)	1,196	0 (0.0)	1,196	0 (0.0)
Influenza B	271	0 (0.0)	271	0 (0.0)
2009 H1N1	1,129	16 (1.4)	478	0 (0.0)

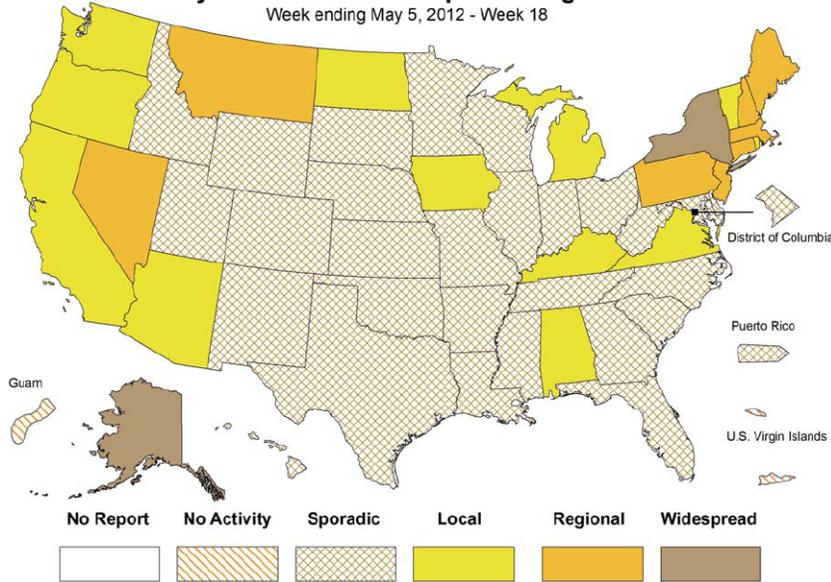
*Includes specimens tested in national surveillance and additional specimens tested at public health laboratories in nine states (DE, FL, MD, MI, MN, NY, TX, WA, and WI) who share testing results with CDC.

So far this season, 16 oseltamivir-resistant 2009 H1N1 viruses have been detected nationally. Three patients were using oseltamivir for 1 day or more at the time of specimen collection. Thirteen had no exposure to oseltamivir; out of those 13 patients, 2 had family members using oseltamivir. (Resistance of influenza A viruses to antiviral drugs can occur spontaneously or emerge during the course of antiviral treatment or antiviral exposure)

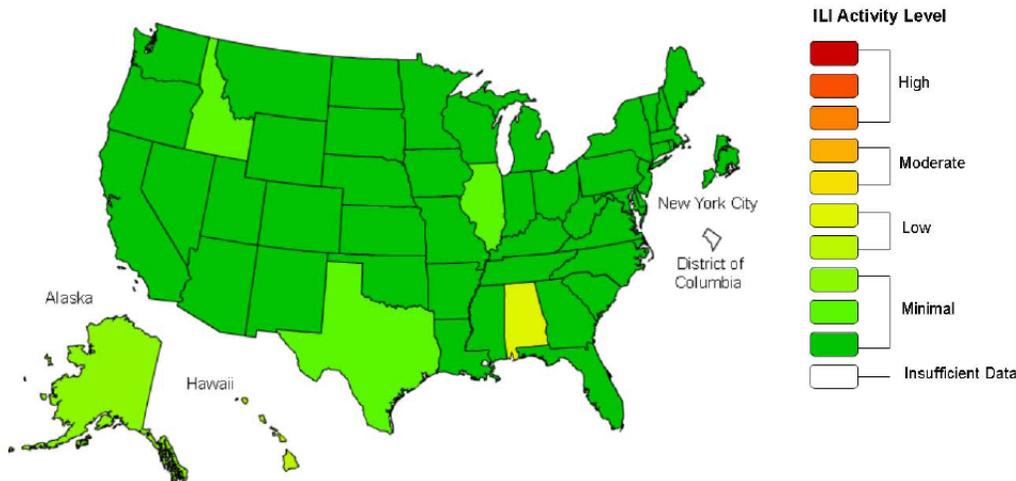
Eleven of the 16 oseltamivir-resistant viruses were collected from January to April 2012 and are from Texas, where a total of 421 2009 H1N1 specimens have been tested for oseltamivir resistance. Oseltamivir resistance remains quite low nationally and in Texas, even though the percentage of oseltamivir-resistant 2009 H1N1 viruses in Texas (2.6%) is higher than the national percentage. CDC continues to recommend the use of oseltamivir or zanamivir as early as possible for patients with confirmed or suspected influenza who have severe, complicated, or progressive illness; who require hospitalization; or who are at greater risk for influenza-related complications. Use of the adamantanes is not recommended.

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

Week ending May 5, 2012 - Week 18



**Influenza-Like Illness (ILI) Activity Level Indicator Determined by Data Reported to ILINet
2011-12 Influenza Season Week 18 ending May 05, 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.

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

International (WHO [edited], May 10): The seasonal peak for influenza has passed in most countries in the temperate regions of the northern hemisphere. Different viruses have predominated in different parts of the world in the northern hemisphere 2011-12 influenza season. In North America, Canada had a slight predominance of influenza B over influenza A(H3N2) (67% vs. 33% respectively) particularly later in the season, while in the United States of America (USA), the proportions were reversed and A(H3N2) was more common. Mexico's season was almost all related to influenza 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 influenza A(H3N2) appearing later, though this sequence was reversed in the Republic of Korea and Japan where A(H3N2) was predominant initially and influenza B appeared later. At the beginning of the influenza season, most viruses tested were antigenically closely 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 and significant numbers of A(H3N2) viruses tested in recent months have shown reduced cross reactivity with the vaccine viruses. 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 most of 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.

MDCH reported **SPORADIC ACTIVITY** to the CDC for the week ending May 12, 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, Research (CIDRAP, May 10): Only 9 of 2,512 poultry workers (0.4%) exposed to H5N1 avian influenza during a 2003-04 outbreak in South Korea had antibodies to the virus, according to a study published yesterday in *Emerging Infectious Diseases*. From December 2003 through March 2004, workers culled about 5 million chickens and ducks after 19 H5N1 outbreaks in seven provinces. As reported in the study, South Korean and US investigators analyzed serology samples from 2,512 workers who culled poultry or worked on the affected farms, both high-risk groups. Using laboratory tests and case definitions recommended by the World Health Organization, the team found that nine workers—all cullers—had antibodies to H5N1. Although the authors list study limitations, including limited epidemiologic data, they conclude, "We determined that the risk for poultry-to-human transmission of the influenza (H5N1) virus is small. Other studies have also shown low frequencies of poultry-to-human (H5N1) virus transmission."

The entire study is available online at http://wwwnc.cdc.gov/eid/article/18/6/11-1631_article.htm.

International, Poultry (OIE [edited], May 11): Low pathogenic avian influenza H5N2; South Africa
Outbreak: LPAI_WCP2012_01, Uniondale, WESTERN CAPE PROVINCE
Date of start of the outbreak: 13/01/2012; Outbreak status: Resolved; Epidemiological unit: Farm
Species: Birds; Susceptible: 2407; Cases: 622; Deaths: 0; Destroyed: 0; Slaughtered: 2407
Affected population: Commercial ostriches. First suspected to be HPAI.

International, Poultry (OIE [edited], May 14): Low pathogenic avian influenza H5N2; Chinese Taipei
Outbreak: Long-Jing Township, T'AI-CHUNG; Affected population: Duck
Date of start of the outbreak: 10/04/2012; Outbreak status: Continuing; Epidemiological unit: Farm
Species: Birds; Susceptible: 176; Cases: 20; Deaths: 0; Destroyed: 0; Slaughtered: 176

International, Poultry (OIE [edited], May 14): Highly pathogenic avian influenza H5N2; Chinese Taipei
Outbreak: Bei-Gang Township, YUN-LIN; Affected population: Native chicken
Date of start of the outbreak: 07/05/2012; Outbreak status: Continuing; Epidemiological unit: Farm
Species: Birds; Susceptible: 15461; Cases: 6500; Deaths: 3850; Destroyed: 11611

Michigan Wild Bird Surveillance (USDA, as of May 17): For the 2012 season (April 1, 2012-March 31, 2013), no samples have currently 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 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 May 2, 2012. http://www.who.int/influenza/human_animal_interface/EN_GIP_20120502CumulativeNumberH5N1cases.pdf. Downloaded 5/7/2012. 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	2	2	20	18
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	25	16	603	356