



MI Flu Focus

Influenza Surveillance Updates
Bureaus of Epidemiology and Laboratories



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Updates of Interest

- **International:** Scientists have discovered a new gene in the influenza virus that helps the virus control the body's response to infection
- **International:** Avian influenza outbreaks are reported in China and South Africa

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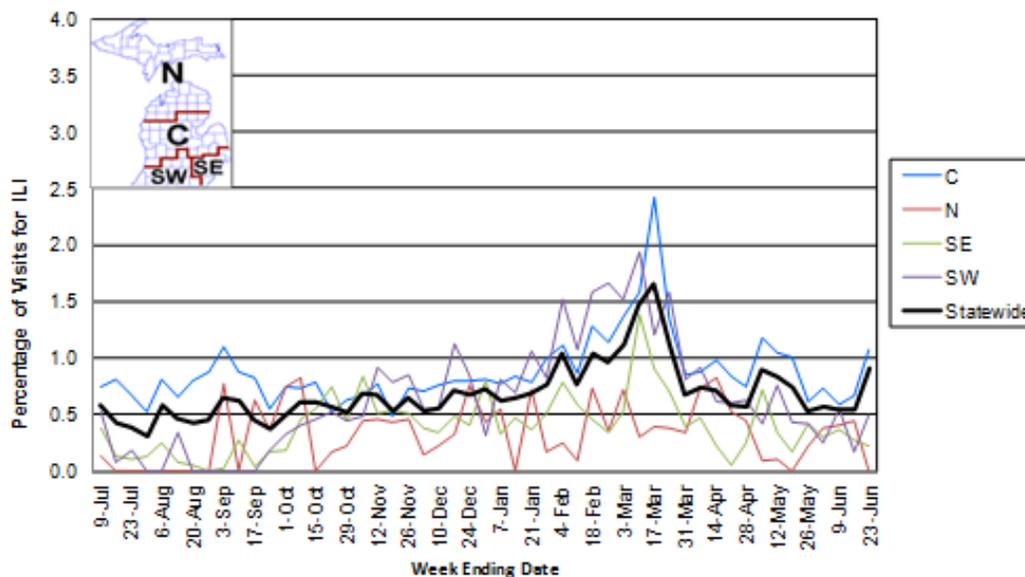
Influenza Surveillance Reports

Michigan Disease Surveillance System (as of July 5): MDSS data for the week ending June 30th indicated that compared to levels from the previous week, aggregate reports remained steady at low levels, while individual reports slightly decreased. Individual and aggregate reports are marginally higher than levels seen during the same time period last year.

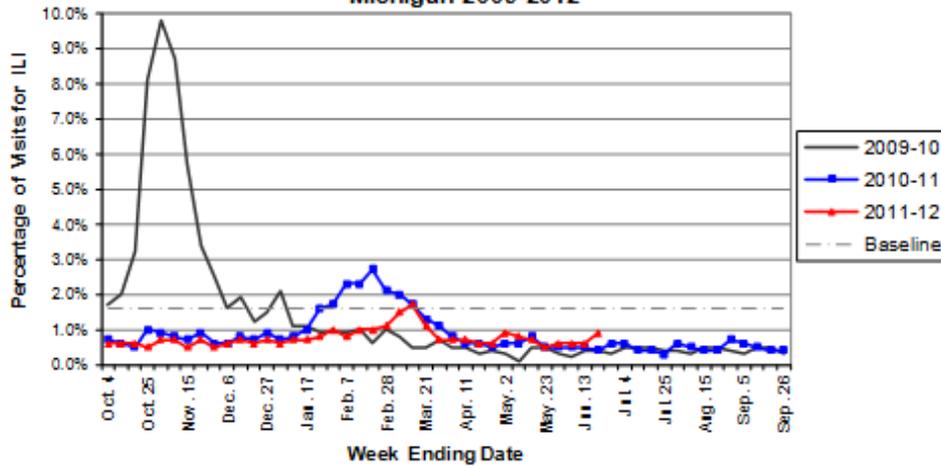
Emergency Department Surveillance (as of July 5): Compared to levels from the week prior, emergency department visits from constitutional complaints remained steady, while respiratory complaints slightly decreased. Both constitutional and respiratory complaints are similar to levels reported during the same time period last year. In the past week, there were 6 constitutional alerts in the C(5) and N(1) Influenza Surveillance Regions and 1 respiratory alert in the N Region.

Sentinel Provider Surveillance (as of June 28): During the week ending June 23, 2012, the proportion of visits due to influenza-like illness (ILI) slightly increased to 0.9% overall; this is below the regional baseline of (1.6%). A total of 48 patient visits due to ILI were reported out of 5,264 office visits. Twenty-one sentinel sites provided data for this report. ILI activity increased in two surveillance regions: Central (1.1%) and Southwest (0.5%); activity decreased in the remaining two regions: North (0.0%) and Southeast (0.2%). 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 June 30): 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 June 30, 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 June 30): During June 24-30, 3 influenza B (3SW) results were reported by MDCH BOL. For the 2011-12 season (starting October 2, 2011), MDCH has identified 1163 influenza results:

- Influenza A(H3): 1051 (605SE, 97SW, 302C, 47N)
- Influenza A(H1N1)pdm09: 32 (22SE, 3SW, 5C, 2N)
- Influenza B: 79 (30SE, 32SW, 12C, 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 June 30, 2012. 1 lab (SW) reported sporadic parainfluenza activity. No labs reported influenza A, influenza B, RSV, adenovirus or HMPV activity. Testing volumes are at low levels.

Michigan Influenza Antigenic Characterization (as of July 5): For the 2011-12 season, 69 Michigan influenza B viruses have been characterized at MDCH. 8 viruses are B/Brisbane/60/2008-like (included in the 2011-12 influenza vaccine). 61 are B/Wisconsin/01/2010-like (not included in the 2011-12 vaccine).

Michigan Influenza Antiviral Resistance Data (as of July 5): For the 2011-12 season, 26 Michigan influenza A(H1N1)pdm09 specimens and 95 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 July 5): 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 July 5): No new respiratory outbreaks were reported to MDCH during the previous week. 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: 15 (4SE, 1SW, 10C)
- Influenza A: 2 (2C)
- Human metapneumovirus: 1 (SW)
- Negative or not tested: 11 (1SE, 1SW, 8C, 1N)

National (CDC): Past weekly reports and updated data during the summer months are available online at <http://www.cdc.gov/flu/weekly/fluactivity.htm>.

International (WHO [edited], June 22): The influenza season is largely finished in the temperate countries of the northern hemisphere with some persistent low level influenza transmission in eastern Europe and northern China. Most northern hemisphere temperate countries have now stopped weekly influenza data reporting. Some tropical countries are experiencing an increase or stable transmission of influenza viruses including countries in Central America, the Caribbean, South America and, in Sub-Saharan Africa. The influenza season has not yet started in the temperate countries of the southern hemisphere, although several countries including Australia, Chile, Paraguay and South Africa have reported small but sustained increase of influenza virus detections. Influenza A(H3N2) viruses are the most commonly detected type/sub-type in recent weeks in the Southern Hemisphere temperate region. A detailed review of the recent influenza season in the temperate countries of the northern hemisphere is available online at: <http://www.who.int/wer/2012/wer8724/en/>.

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.

International, Research (University of Edinburgh press release [edited], June 28): Scientists have discovered a new gene in the influenza virus that helps the virus control the body's response to infection.

Although this control is exerted by the virus, surprisingly it reduces the impact of the infection. The findings will help researchers better understand how flu can cause severe infections, as well as inform research into new treatments.

Researchers found when the virus gene – called PA-X – was active, mice infected with flu subsequently recovered. When the PA-X gene did not work properly, the immune system was found to overreact. This made the infection worse, and did not help destroy the virus any quicker.

The study looked at how the gene affected the behaviour of "Spanish flu", a virulent strain of influenza that caused a pandemic in 1918. It was carried out by the Universities of Cambridge, Cork, Edinburgh and Utah, the Institute of Systems Biology in Seattle and the United States National Institutes of Health.

Scientists discovered the PA-X gene some 30 years after flu genome was first decoded.

Professor Paul Digard, of The Roslin Institute at the University of Edinburgh, said: "Just finding this gene in the first place is important, but the find is even more significant because of the role it seems to play in the body's response to flu."

The full press release is online at http://www.eurekalert.org/pub_releases/2012-06/uoegdh062812.php.

International, Poultry (OIE [edited], June 28): Highly pathogenic avian influenza H5N2; South Africa
 Outbreak 1 (AI_WCP2011_49): AI_WCP2011_49, Hessequa, WESTERN CAPE PROVINCE
 Date of start of the outbreak: 29/05/2012; Outbreak status: Continuing; Epidemiological unit: Farm
 Species: Birds; Susceptible: 450; Cases: 38; Deaths: 0; Destroyed: 0
 Affected population: Commercial ostriches

Outbreak 2 (AI_WCP200_50): AI_WCP2011_50, Hessequa, WESTERN CAPE PROVINCE
 Date of start of the outbreak: 28/05/2012; Outbreak status: Continuing; Epidemiological unit: Farm
 Species: Birds; Susceptible: 5427; Cases: 1447; Deaths: 0; Destroyed: 0
 Affected population: Commercial ostriches

International, Poultry (OIE [edited], July 2): Highly pathogenic avian influenza H5N1; China
 Outbreak: Xinjiang Production and Construction Corps, XINJIANG
 Date of start of the outbreak: 02/07/2012; Outbreak status: continuing; Epidemiological unit: Farm
 Species: Birds; Susceptible: 156439; Cases: 5500; Deaths: 1600; Destroyed: 154839

Michigan Wild Bird Surveillance (USDA, as of July 5): For the 2012 season (April 1, 2012-March 31, 2013), highly pathogenic avian influenza H5N1 has not been recovered from the 7 samples tested nationwide. 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 June 7, 2012. http://www.who.int/influenza/human_animal_interface/EN_GIP_20120607_CumulativeNumberH5N1cases.pdf. Downloaded 6/20/2012. 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	2	1	43	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	10	5	168	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	28	17	606	357