



MI Flu Focus

Influenza Surveillance Updates
Bureaus of Epidemiology and Laboratories



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Updates of Interest

- **National:** 3 instances of likely person-to-person spread of H3N2v influenza were recently identified during investigations of cases and their household contacts. Person-to-person spread remains limited and has not become easily sustained.

Table of Contents

Influenza Surveillance Reports	
Michigan.....	1-3
National.....	3
International.....	3
Novel Influenza and Other News	
WHO Pandemic Phase.....	4
Avian Influenza Surveillance.....	6
Avian Influenza H5N1 in Humans.....	6

****H3N2v Influenza Update****

Since August 15, MDCH has reported 5 confirmed human cases of variant influenza A (H3N2) (H3N2v). Michigan cases have come from Clinton(1), Shiawassee(2) and Washtenaw(2) counties. All cases have had mild illness and have had either direct or indirect swine exposure at county fairs in Michigan. Updated Michigan case counts of confirmed H3N2v infections will be posted every Friday on the MDCH Influenza Website: www.michigan.gov/flu. In addition, 289 human cases of H3N2v have been reported in association with swine exposure since July 2012 in 9 other states. The Michigan Department of Community Health issued updated guidance for healthcare providers, laboratories and local health departments on August 14 on the MDCH Influenza Website. Current information on this situation and updated case counts can be found on the CDC H3N2v website at www.cdc.gov/flu/swineflu/influenza-variant-viruses-h3n2v.htm. Please call the MDCH Division of Communicable Disease at (517) 335-8165 with any questions.

Influenza Surveillance Reports

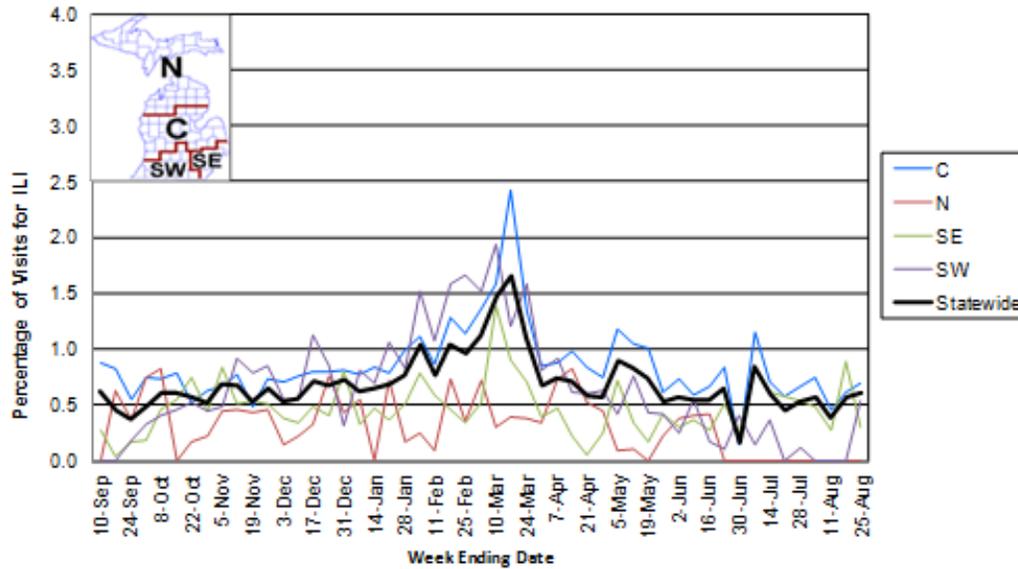
Michigan Disease Surveillance System (as of August 30): MDSS data for the week ending August 25th indicated that compared to levels from the previous week, aggregate and individual reports remained steady at sporadic levels. Individual and aggregate reports are similar to levels seen during the same time period last year. Small numbers of novel influenza case investigations related to the current H3N2v outbreak were also reported into MDSS during the past week.

Emergency Department Surveillance (as of August 30): Compared to levels from the week prior, emergency department visits from constitutional complaints remained steady, while respiratory complaints slightly increased. Both constitutional and respiratory complaints are similar to levels reported during the same time period last year. In the past week, there were 5 constitutional alerts in the SE(1) and C(4) Influenza Surveillance Regions and 3 respiratory alerts in the C(1) and N(2) Regions.

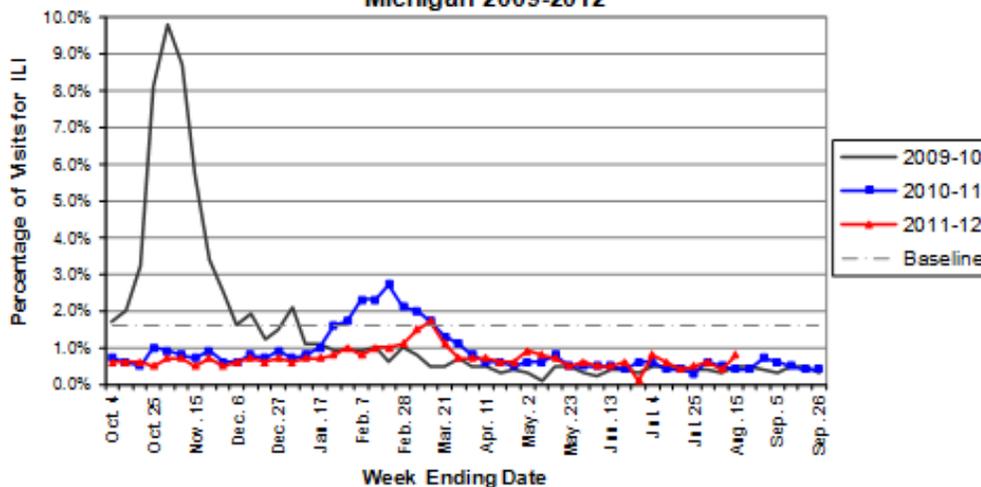
Sentinel Provider Surveillance (as of August 30): During the week ending August 25, 2012, the proportion of visits due to influenza-like illness (ILI) remained at 0.6% overall; this is below the regional baseline of (1.6%). A total of 37 patient visits due to ILI were reported out of 6,108 office visits. Data were provided by twenty sentinel sites from the following regions: C (11), N (3), SE (4) and SW (2). ILI activity increased in two surveillance region: Central (0.7%) and Southwest (0.5%); and decreased in one region Southeast (0.3%). The remaining region continued to report no ILI activity: North (0.0%). 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 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**



Hospital Surveillance (as of August 25): 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) were reported in the catchment area.

The MDCH Influenza Sentinel Hospital Network monitors influenza hospitalizations reported voluntarily by hospitals statewide. 3 hospitals (SE, SW) reported for the week ending August 25, 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 August 25): During August 19-25, three variant H3N2 influenza results (1SW, 2C) and 1 seasonal A(H3) result (1SW) were reported by MDCH BOL. For the 2011-12 season

(starting Oct. 2, 2011), MDCH has identified 1168 seasonal influenza results and 5 variant influenza H3N2 results:

- Influenza A(H3): 1056 (608SE, 98SW, 303C, 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)
- Influenza A(H3N2)variant: 5 (2SE, 1SW, 2C)
- Parainfluenza: 3 (2SE, 1C)
- Adenovirus: 3 (3SE)
- RSV: 4 (1SW, 1C, 2N)

9 sentinel labs (SE, SW, C, N) reported for the week ending August 25, 2012. One lab (SE) reported sporadic RSV activity. No labs reported influenza A, influenza B, parainfluenza, adenovirus or HMPV activity. Testing volumes are at very low levels.

Michigan Influenza Antigenic Characterization (as of August 30): 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 vaccine). 61 are B/Wisconsin/01/2010-like (not included in the 2011-12 vaccine).

Michigan Influenza Antiviral Resistance Data (as of August 30): 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 August 30): 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 August 30): No new respiratory outbreaks were reported to MDCH during the past week. 30 respiratory outbreaks (5SE, 3SW, 20C, 2N) 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: 12 (1SE, 1SW, 8C, 2N)

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], August 17): Most countries in the northern temperate zone have stopped weekly reporting or moved over to out of season surveillance schedules. The United States of America is continuing to detect cases of influenza A(H3N2)v in humans. Most cases have occurred with contact to swine and no sustained human to human transmission has been identified. In the tropical zone, the countries reporting notable influenza activity are Brazil, Cuba, El Salvador, Honduras and Panama in the Americas (influenza A(H1N1)pdm09 and type B); Ghana and Madagascar in sub-Saharan Africa (influenza A(H3N2) and type B); Bangladesh, southern China, India, Singapore, Sri Lanka and Viet Nam in Asia (influenza A(H3N2) or B). While New Zealand continues to report increases in some indicators, influenza activities have decreased in most of the temperate countries of the southern hemisphere. Australia, Chile, Paraguay and South Africa, continue to report declines in indicators. Argentina continues to report very low numbers of detections throughout 2012. Influenza A(H3N2) viruses are the most commonly reported type/sub-type in recent weeks across the southern hemisphere temperate region in Chile, South Africa, and Australia. A(H1N1)pdm09 is the most common influenza virus detected in Paraguay as well as neighbouring areas of southern Brazil and the Plurinational State of Bolivia, whereas Ecuador, El Salvador, Panama and Peru are reporting mostly influenza B.

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, Human (CDC web update, August 24): Today, 52 additional cases of H3N2v are being reported, bringing the total number of such infections since July 2012 in the United States to 276 across 10 states. Investigations into H3N2v cases indicate that the main risk factor for infection is exposure to pigs, mostly in fair settings; however, CDC also is reporting three instances of likely human-to-human spread of this virus during the current outbreaks. Found in pigs in 2010 and first detected in humans in July 2011, this H3N2 variant virus appears to be more transmissible from pigs to people than other variant viruses. The Centers for Disease Control and Prevention (CDC) is working with states to respond to this evolving situation and continues to monitor the situation closely.

According to CDC's Dr. Joseph Bresee "limited human-to-human spread of this virus has been seen in the past, but the H3N2v virus has not previously -- *and is not now* -- spreading easily from person-to-person." According to Bresee, "Most cases are occurring in children who are exhibiting pigs, or helping to exhibit pigs and have occurred after a lot of very close contact with pigs over a relatively long period of time." Dr. Bresee is Chief of the Epidemiology and Prevention Branch in CDC's Influenza Division.

The 52 new cases reported this week are from the states of Illinois (1), Maryland (12), Michigan (4), Minnesota (1), Ohio (26), Pennsylvania (2), and Wisconsin (6). These are the first reports of H3N2v with the pandemic M gene from Maryland and Minnesota. The cases in [Maryland](#) are reported to have had exposure to pigs prior to their illness. The one case in [Minnesota](#) was confirmed following a visit to a live animal market where pigs were present. Cumulative totals for 2011 and 2012 by state are available in the [H3N2v case count table](#). The remaining cases being reported this week are associated with exposure to pigs at fairs.

The three instances of likely person-to-person spread of H3N2v were recently identified during investigations of cases and their household contacts and are not epidemiologically linked to one another. In all three cases, transmission is thought to have occurred from one person to another person without further spread to additional people. Each of these three instances of likely person-to-person spread happened between 2 people living in the same household, with the initial infection in each household being associated with pig exposure at an agricultural fair.

"We're not particularly surprised to see what looks like limited human-to-human transmission," says Bresee. Limited human-to-human spread has been seen in the past, both with this variant virus as well as other variant viruses. "It's clear though," Bresee adds, "that this virus is much better able to spread to people. It's reassuring that we are seeing most cases in people with prolonged contact with pigs and that we are not seeing any sustained community transmission, but this situation definitely warrants our close attention," says Bresee.

CDC is monitoring for changes in the virus and potential person-to-person transmission of H3N2v. This week CDC updated its guidance to states for [enhanced surveillance](#) for influenza-like-illness (ILI) in all people, including people reporting pig exposure. So far, genetic analysis of the viruses submitted to CDC show that all viruses are nearly identical, and very similar to the H3N2v viruses found in 2011.

Illness associated with this virus so far continues to be mostly mild with symptoms similar to seasonal flu. Like seasonal flu, however, serious illness with H3N2v infection is possible. To date, [13 hospitalizations](#) have occurred, but all patients have recovered. Last week CDC [issued information for clinicians](#) on H3N2v; guidance which underscores the importance of rapid antiviral treatment of H3N2v virus infections in high risk patients.

High risk factors include: being younger than 5 years, or 65 and older, pregnancy, and certain chronic medical conditions like asthma, diabetes, heart disease, weakened immune systems, and neurological or neurodevelopmental conditions.

CDC has [specific recommendations this summer for people attending fairs](#). Anyone with an age or medical factor that puts them at high risk for serious flu complications is being urged to avoid pigs and swine barns at fairs this season. CDC and USDA also have issued a fact sheet entitled [Issues for Fair Organizers to Consider When Planning Fairs](#).

“Something else we are looking at is schools,” says Bresee “as the school year gets underway and we move into fall and winter, the opportunities for spread of respiratory viruses like influenza increase. It’s possible we could see isolated cases of H3N2v infection, and even some localized outbreaks, particularly in schools or day cares,” he cautions. CDC has issued [supplemental guidance for schools on H3N2v](#). “The guidance document is a heads up for schools to be aware of, and on the look-out for, illness with this virus,” Bresee explains. In 2011, there was at least one documented outbreak of H3N2v in a day care setting.

“It’s important to remember that this is an evolving situation that could change quickly,” Bresee notes. “We’re constantly looking at our data and re-evaluating.”

Symptoms of H3N2v have been consistent with seasonal influenza and include fever, cough, sore throat, runny or stuffy nose, muscle or body aches, headaches and fatigue. While influenza viruses can spread from people to pigs and pigs to people, however, they have not been shown to be transmissible to people through eating pork (pig meat).

The article is available online at <http://www.cdc.gov/flu/spotlights/h3n2v-new-cases.htm>.

National, Humans (Pediatrics abstract, August 29): Neurologic Disorders Among Pediatric Deaths Associated With the 2009 Pandemic Influenza. Lenee Blanton, Georgina Peacock, Chad Cox, Michael Jhung, Lyn Finelli and Cynthia Moore. *Pediatrics*; originally published online August 29, 2012.

OBJECTIVE: The goal of this study was to describe reported influenza A (H1N1)pdm09 virus (pH1N1)-associated deaths in children with underlying neurologic disorders.

METHODS: The study compared demographic characteristics, clinical course, and location of death of pH1N1-associated deaths among children with and without underlying neurologic disorders reported to the Centers for Disease Control and Prevention.

RESULTS: Of 336 pH1N1-associated pediatric deaths with information on underlying conditions, 227 (68%) children had at least 1 underlying condition that conferred an increased risk of complications of influenza. Neurologic disorders were most frequently reported (146 of 227 [64%]), and, of those disorders, neurodevelopmental disorders such as cerebral palsy and intellectual disability were most common. Children with neurologic disorders were older ($P = .02$), had a significantly longer duration of illness from onset to death ($P < .01$), and were more likely to die in the hospital versus at home or in the emergency department ($P < .01$) compared with children without underlying medical conditions. Many children with neurologic disorders had additional risk factors for influenza-related complications, especially pulmonary disorders (48%). Children without underlying conditions were significantly more likely to have a positive result from a sterile-site bacterial culture than were those with an underlying neurologic disorder ($P < .01$).

CONCLUSIONS: Neurologic disorders were reported in nearly two-thirds of pH1N1-associated pediatric deaths with an underlying medical condition. Because of the potential for severe outcomes, children with underlying neurologic disorders should receive influenza vaccine and be treated early and aggressively if they develop influenza-like illness.

The abstract is available online at <http://pediatrics.aappublications.org/content/early/2012/08/24/peds.2011-3343.abstract?sid=6d0248fe-576c-4469-87ef-3ce4e7cd3d07>.

Michigan Wild Bird Surveillance (USDA, as of August 30): 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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MDCH Bureau of Laboratories – A. Muyombwe, PhD; V. Vavricka, MS

Table. H5N1 Influenza in Humans – As of August 10, 2012. http://www.who.int/influenza/human_animal_interface/EN_GIP_20120810CumulativeNumberH5N1cases.pdf. Downloaded 8/13/2012. Cumulative lab-confirmed cases reported to WHO. Total cases include 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	8	8	191	159
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	30	19	608	359