



# MI Flu Focus

Influenza Surveillance Updates  
Bureaus of Epidemiology and Laboratories

Michigan Department  
of Community Health



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## Current Influenza Activity Levels:

- **Michigan:** No influenza activity

## Updates of Interest:

- **International:** China confirms a new case of avian influenza H7N9, the first since August
- **International:** A novel influenza strain is identified in Peruvian bats

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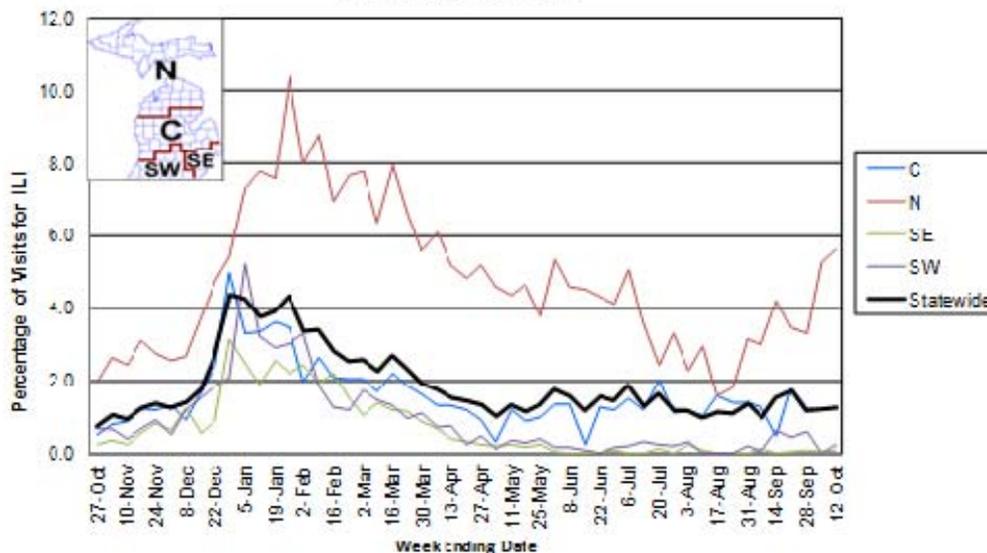
## Influenza Surveillance Reports

**Michigan Disease Surveillance System (as of October 17):** MDSS influenza data for the week ending October 5, 2013 indicated that compared to levels from the previous week, both aggregate and individual reports remained steady at low levels. Individual reports are similar to levels seen during the same time period last year, while aggregate reports are slightly lower.

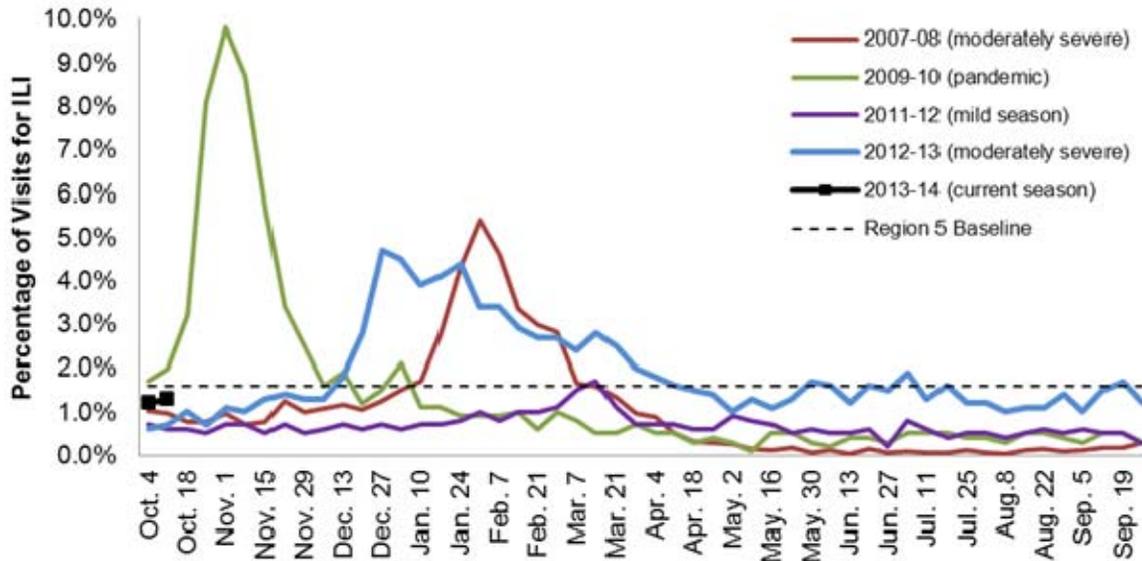
**Emergency Department Surveillance (as of October 17):** Emergency department visits due to constitutional complaints were similar to levels from the previous week, while respiratory complaints slightly decreased. Emergency department visits from constitutional complaints were similar to levels during the same time period last year, while respiratory complaints were lower. In the past week, there were 7 constitutional alerts in the SE(1), SW(3), C(2) and N(1) Influenza Surveillance Regions and 12 respiratory alerts in the SE(2), SW(1), C(8) and N(1) Regions.

**Sentinel Provider Surveillance (as of October 17):** During the week ending October 12, 2013, the proportion of visits due to influenza-like illness (ILI) increased to 1.3% overall; this is below the regional baseline (1.6%). A total of 131 patient visits due to ILI were reported out of 10,442 office visits. Data were provided by 25 sentinel sites from the following regions: Central (9), North (3), Southeast (10), and Southwest (3). ILI activity remained the same in one region: C (1.2%) and increased in three regions: N (5.6%), SE (0.1%), and SW (0.2%). Please Note: These rates may change as additional reports are received. The increased ILI activity in the North Region is due to data from one sentinel. As only 3 sites reported from this region, these data may not accurately represent the entire region's current ILI activity.

Percentage of Visits for Influenza-like Illness (ILI)  
Reported by Sentinel Providers, Statewide and Regions  
2013-14 Flu Season



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



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 Stefanie DeVita at 517-335-3385 or DeVitaS1@michigan.gov for more information.

**Hospital Surveillance (as of October 17):** The CDC Influenza Hospitalization Surveillance Project provides population-based rates of severe influenza illness through active surveillance and chart review of lab-confirmed cases, starting on October 1, 2013, in the Clinton, Eaton, Genesee, and Ingham counties. No cases have been identified in the catchment area during the 2013-14 season.

The MDCH Influenza Sentinel Hospital Network monitors influenza hospitalizations reported voluntarily by hospitals statewide. Four hospitals (SE, SW) reported for the week ending October 12, 2013. No influenza hospitalizations have been reported through this network for the 2013-14 season.

**Laboratory Surveillance (as of October 12):** During October 5-12, 1 positive influenza A/H3 result (1SE) was reported by MDCH. Based on the case investigation, this positive result is being counted in the numbers for the 2012-13 season. For the 2012-13 season (starting Sept. 30, 2012), MDCH has identified 691 influenza results.

For the 2013-14 season (starting Sept. 29, 2013), MDCH has identified no positive influenza results.

9 sentinel labs (SE, SW, C, N) reported for the week ending October 12, 2013. 1 lab (SE) reported sporadic influenza A and B activity. 4 labs (SE, SW, C) reported parainfluenza activity. 2 labs (SE, C) reported sporadic RSV activity. 2 labs (SE, SW) reported sporadic adenovirus activity. 1 lab (SE) reported sporadic hMPV activity. Most sites remain at low testing volumes; several sites (SE, SW) reported increasing testing volumes.

**Michigan Influenza Antigenic Characterization (as of October 17):** For the 2013-14 season, no influenza specimens have been characterized at MDCH BOL.

**Michigan Influenza Antiviral Resistance Data (as of October 17):** For the 2013-14 season, no influenza specimens have been tested at the MDCH BOL for antiviral 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 October 17):** No pediatric influenza-associated influenza mortalities have been reported to MDCH for the 2013-14 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](http://www.michigan.gov/documents/mdch/ME_pediatric_influenza_guidance_v2_214270_7.pdf).

**Influenza Congregate Settings Outbreaks (as of October 17):** No respiratory outbreaks have been reported to MDCH during the 2013-14 season.

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

**International (WHO [edited], October 14):** Although in many European countries influenza-like illness activity started to increase, influenza activity in the northern hemisphere temperate zones remained at inter-seasonal levels. In most regions of tropical Asia influenza activity was at a low level, with the exception of Hong Kong Special Administrative Region, China, where influenza transmission increased due to influenza A(H3N2). In the Caribbean region of Central America and tropical South America countries, cases of influenza decreased. While acute respiratory illness remained stable in the Caribbean and Central America. Respiratory syncytial virus (RSV) predominated but the RSV activity remained within expected seasonal levels. Influenza activity peaked in the temperate countries of South America and in South Africa in late June. Temperate South American countries reported acute respiratory disease activity within expected seasonal levels, and RSV activity largely declined. In Australia and New Zealand, numbers of influenza viruses detected and rates of influenza-like illness seemed to have peaked. Co-circulation of influenza A(H1N1)pdm09, A(H3N2) and B viruses was reported in both countries.

The entire WHO report is available online at [www.who.int/influenza/surveillance\\_monitoring/updates/latest\\_update\\_GIP\\_surveillance/en/index.html](http://www.who.int/influenza/surveillance_monitoring/updates/latest_update_GIP_surveillance/en/index.html).

MDCH reported NO INFLUENZA ACTIVITY to CDC for the week ending October 12, 2013.

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](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, October 16):** The National Health and Family Planning Commission, China notified WHO of a new laboratory-confirmed case of human infection with avian influenza A(H7N9) virus. This is the first new confirmed case of human infection with avian influenza A(H7N9) virus since 11 August 2013.

The patient is a 35-year-old man from Zhejiang Province. He was admitted to a hospital on 8 October 2013 and is in a critical condition. Additionally, a previously laboratory-confirmed patient from Hebei has died.

To date, WHO has been informed of a total of 136 laboratory-confirmed human cases with avian influenza A(H7N9) virus infection including 45 deaths. Currently, three patients are hospitalized and 88 have been discharged. So far, there is no evidence of sustainable human-to-human transmission.

The Chinese government continues to take strict monitoring, prevention and control measures, including: strengthening of epidemic surveillance and analysis; deployment of medical treatment; conducting public risk communication and information dissemination; strengthening international cooperation and exchanges; and is continuing to carry out scientific research.

WHO does not advise special screening at points of entry with regard to this event, nor does it currently recommend any travel or trade restrictions.

The report is available online at [http://www.who.int/csr/don/2013\\_10\\_16/en/index.html](http://www.who.int/csr/don/2013_10_16/en/index.html).

**International, Human (WHO [edited], October 7):** Influenza at the human-animal interface: Summary and assessment as of 7 October 2013

*Human infection with avian influenza A(H5N1) viruses*

From 2003 through 7 October 2013, 641 laboratory-confirmed human cases with avian influenza A(H5N1) virus infection have been officially reported to WHO from 15 countries. Of these cases, 380 died.

Since the last WHO Influenza at the Human Animal Interface update on 26 August 2013, four new laboratory-confirmed human cases of influenza A(H5N1) virus infection were reported to WHO from Cambodia (3) and Indonesia (1).

All cases are considered to be sporadic, with no evidence of community-level transmission. As influenza A(H5N1) virus is thought to be circulating widely in poultry in Cambodia and Indonesia, additional sporadic human cases or small clusters might be expected in the future.

*Avian influenza A(H7N9) in China*

Since the last update of 26 August 2013, China has reported no new cases of human infection with avian influenza A(H7N9) virus, but reported one death in a previously reported case. As of 7 October 2013, 135 human cases of influenza A(H7N9) virus infection were reported to WHO. Of these cases, 45 died. Most human cases presented with pneumonia.

*Influenza A(H7N7) virus infection in humans in Italy*

On 14 August 2013, highly pathogenic avian influenza A(H7N7) was reported in poultry in Northern Italy. To date, a total of six outbreaks in poultry have been reported in this region, the last started on 4 September 2013, according to OIE 1 Three human cases of infection with influenza A(H7N7) virus were identified in men involved in culling operations<sup>2</sup>. All three men developed conjunctivitis, one had also chills and muscle aches. All individuals recovered without treatment. Genetically, these A(H7N7) viruses are similar to low pathogenic viruses circulating in wild birds in Europe and those causing sporadic and limited outbreaks in poultry in Central and Northern Europe. Antigenically, the A(H7N7) virus reacted well to post-infection ferret antisera raised against existing candidate A(H7) vaccine viruses.

*Influenza A(H3N2) variant virus infections in humans in the USA*

To date in 2013, the United States of America (USA) reported 18 cases of human infection with influenza A(H3N2)v from Illinois (1), Indiana (14), Michigan (2) and Ohio (1). Only one person was hospitalized and no deaths have occurred. All cases reported close contact with swine in the week before illness onset and no ongoing human-to-human transmission has been identified.

*Non-seasonal A(H1N1) virus infections in humans in the USA*

The USA announced two new human infections with a non-seasonal influenza A(H1N1) virus. The cases had contact with swine in the week before illness onset. Both patients recovered fully. These viruses are genetically similar to viruses circulating in swine in the region and to non-seasonal A(H1N1) viruses detected in humans in previous years.

The full report is available online at

[www.who.int/influenza/human\\_animal\\_interface/Influenza\\_Summary\\_IRA\\_HA\\_interface\\_7October13.pdf](http://www.who.int/influenza/human_animal_interface/Influenza_Summary_IRA_HA_interface_7October13.pdf).

**International, MERS-CoV (WHO [edited], October 14):** WHO has been informed of an additional two laboratory-confirmed cases of Middle East respiratory syndrome coronavirus (MERS-CoV) infection in Saudi Arabia.

The patients, both men, aged 55 and 78, were from Riyadh region. They became ill at the end of September 2013 and died in the beginning of October 2013. Both the patients were reported to have had no contact to a known laboratory-confirmed case with MERS-CoV.

Globally, from September 2012 to date, WHO has been informed of a total of 138 laboratory-confirmed cases of infection with MERS-CoV, including 60 deaths.

The full report is available online at [http://www.who.int/csr/don/2013\\_10\\_14/en/index.html](http://www.who.int/csr/don/2013_10_14/en/index.html).

**International, Poultry (OIE [edited], October 14):** Highly pathogenic avian influenza H5N1; Vietnam Outbreak 1: Gieng Em, Nhuan Trach, Luong son, HOA BINH; Date of start of the outbreak: 07/10/2013 Epidemiological unit: Village; Susceptible: 1175; Cases: 370; Deaths: 370; Destroyed: 805

Affected population of 700 ducks and 475 chickens

The full report is available online at [http://www.oie.int/wahis\\_2/public/wahid.php/Diseaseinformation/WI](http://www.oie.int/wahis_2/public/wahid.php/Diseaseinformation/WI).

**International, Poultry (OIE [edited], October 16):** Highly pathogenic avian influenza H7N2; Australia Outbreak: Young, NEW SOUTH WALES; Start date of outbreak: 08/10/2013; Epidemiological unit: Farm Species: Birds; Susceptible: 435000; Cases: 18000; Deaths: 18000; Destroyed: 0; Slaughtered: 0 Affected population: Free range and cage layer hens aged between 22 and 79 weeks

**International, Bats (PLOS Pathogens abstract, October 10):** Tong S, Zhu X, Li Y, Shi M, Zhang J, et al. (2013) New World Bats Harbor Diverse Influenza A Viruses. PLoS Pathog 9(10): e1003657. doi:10.1371/journal.ppat.1003657

Aquatic birds harbor diverse influenza A viruses and are a major viral reservoir in nature. The recent discovery of influenza viruses of a new H17N10 subtype in Central American fruit bats suggests that other New World species may similarly carry divergent influenza viruses. Using consensus degenerate RT-PCR, we identified a novel influenza A virus, designated as H18N11, in a flat-faced fruit bat (*Artibeus planirostris*) from Peru. Serologic studies with the recombinant H18 protein indicated that several Peruvian bat species were infected by this virus. Phylogenetic analyses demonstrate that, in some gene segments, New World bats harbor more influenza virus genetic diversity than all other mammalian and avian species combined, indicative of a long-standing host-virus association. Structural and functional analyses of the hemagglutinin and neuraminidase indicate that sialic acid is not a ligand for virus attachment nor a substrate for release, suggesting a unique mode of influenza A virus attachment and activation of membrane fusion for entry into host cells. Taken together, these findings indicate that bats constitute a potentially important and likely ancient reservoir for a diverse pool of influenza viruses.

The full article is at [www.plospathogens.org/article/info%3Adoi%2F10.1371%2Fjournal.ppat.1003657](http://www.plospathogens.org/article/info%3Adoi%2F10.1371%2Fjournal.ppat.1003657).

**For questions or to be added to the distribution list, please contact Susan Peters at [peterss1@michigan.gov](mailto:peterss1@michigan.gov)**

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**Table. H5N1 Influenza in Humans – As of October 8, 2013.** [http://www.who.int/influenza/human\\_animal\\_interface/EN\\_GIP\\_20131008CumulativeNumberH5N1cases.pdf](http://www.who.int/influenza/human_animal_interface/EN_GIP_20131008CumulativeNumberH5N1cases.pdf). Downloaded 08/29/2013. Cumulative lab-confirmed cases reported to WHO. Total cases include deaths.

Country	2003-2009		2010		2011		2012		2013		Total	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Azerbaijan	8	5	0	0	0	0	0	0	0	0	8	5
Bangladesh	1	0	0	0	2	0	3	0	1	1	7	1
Cambodia	9	7	1	1	8	8	3	3	20	11	41	30
China	38	25	2	1	1	1	2	1	2	2	45	30
Djibouti	1	0	0	0	0	0	0	0	0	0	1	0
Egypt	90	27	29	13	39	15	11	5	4	3	173	63
Indonesia	162	134	9	7	12	10	9	9	2	2	194	162
Iraq	3	2	0	0	0	0	0	0	0	0	3	2
Lao PDR	2	2	0	0	0	0	0	0	0	0	2	2
Myanmar	1	0	0	0	0	0	0	0	0	0	1	0
Nigeria	1	1	0	0	0	0	0	0	0	0	1	1
Pakistan	3	1	0	0	0	0	0	0	0	0	3	1
Thailand	25	17	0	0	0	0	0	0	0	0	25	17
Turkey	12	4	0	0	0	0	0	0	0	0	12	4
Vietnam	112	57	7	2	0	0	4	2	2	1	125	62
Total	468	282	48	24	62	34	32	20	31	20	641	380