



MI Flu Focus

Influenza Surveillance Updates
Bureaus of Epidemiology and Laboratories

Michigan Department
of Community Health



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Updates of Interest

- **Michigan:** A 2nd positive H3N2v infection in a Berrien County child who had swine exposure has been identified
- **International:** WHO reports the 18th case of avian influenza H5N1 in Cambodia for 2013
- **International:** WHO is reporting 108 cases of MERS-CoV including 50 deaths

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****H3N2v Influenza Update****

A total of 2 cases of influenza A H3N2 variant (H3N2v) infection have now been identified in Berrien county children who were swine exhibitors at the Berrien County Youth Fair. The 2nd case was confirmed on September 4, 2013. This is in addition to the 16 human cases of H3N2v that have been reported in association with swine exposure in Indiana, Ohio, and Illinois in 2013. The Michigan Department of Community Health issued updated guidance for healthcare providers, laboratories and local health departments on June 27, 2013 on the MDCH Influenza Website: www.michigan.gov/flu. Current information on this situation and updated case counts can be found on the CDC H3N2v website at <http://www.cdc.gov/flu/swineflu/h3n2v-cases.htm>. Please call the MDCH Division of Communicable Disease at (517) 335-8165 with any questions.

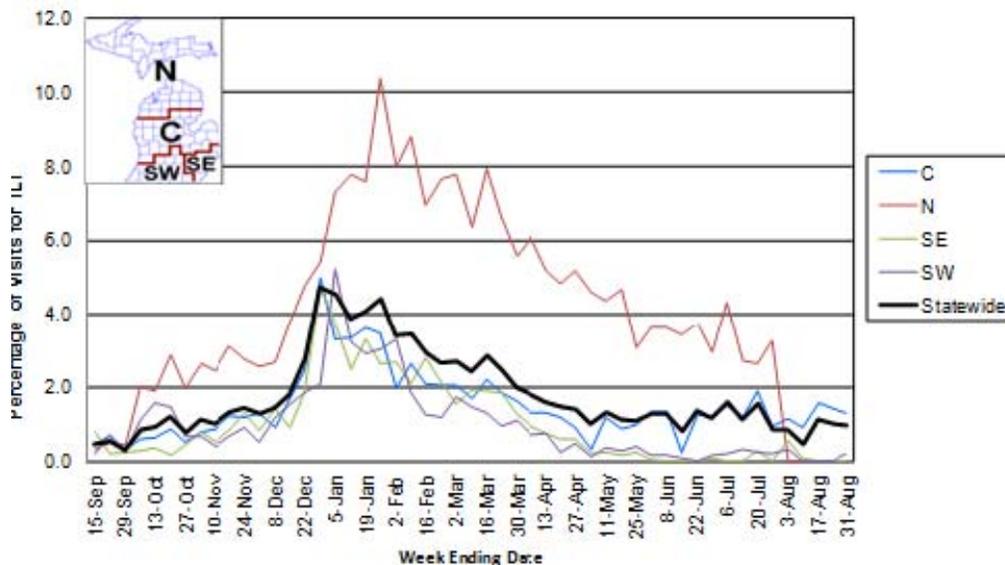
Influenza Surveillance Reports

Michigan Disease Surveillance System (as of September 5): MDSS influenza data for the week ending August 31, 2013 indicated that compared to levels from the previous week, aggregate and individual reports remained steady at very sporadic levels. Both aggregate and individual reports are similar to levels seen during the same time period last year.

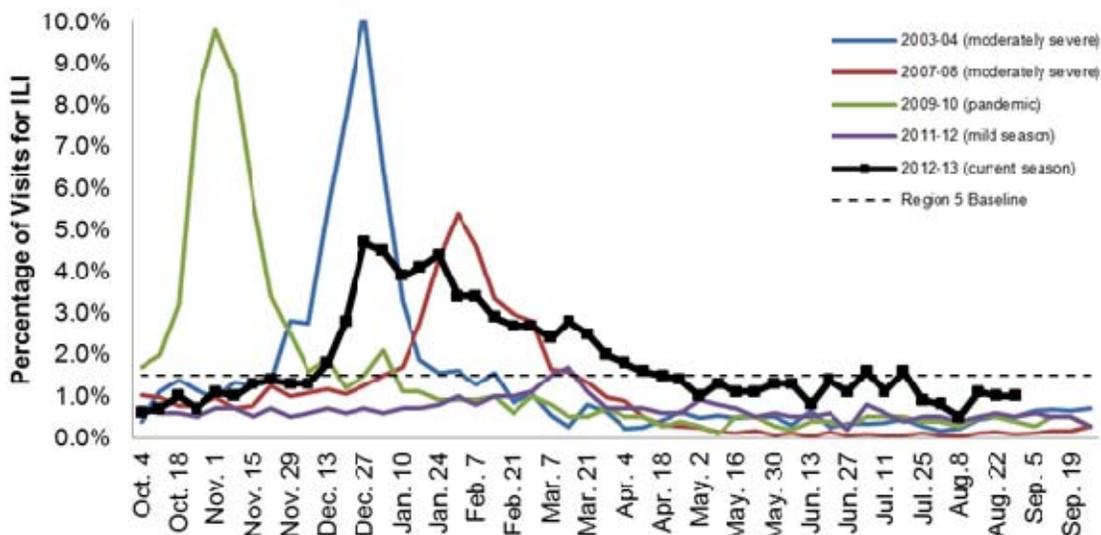
Emergency Department Surveillance (as of September 5): Emergency department visits due to constitutional and respiratory complaints were similar to levels from the previous week. Emergency department visits from both constitutional and respiratory complaints are marginally higher than during the same time period last year. In the past week, there were 5 constitutional alerts in the SE(2), SW(1), and C(2) Influenza Surveillance Regions and 3 respiratory alerts in the SE(1) and SW(2) Regions.

Sentinel Provider Surveillance (as of September 5): During the week ending August 31, 2013, the proportion of visits due to influenza-like illness (ILI) remained the same at 1.0% overall; this is below the regional baseline (1.5%). A total of 46 patient visits due to ILI were reported out of 4,786 office visits. Data were provided by 17 sentinel sites from the following regions: Central (9), North (1), Southeast (4), and Southwest (3). ILI activity decreased in one region: C (1.3%), remained the same in two regions: N (0.0%), and SE (0.0%), and increased in one region: SW (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
2012-13 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 May 18): 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, 2012, in the Clinton, Eaton, Genesee, and Ingham counties. Reporting for the season has concluded. There were 258 influenza hospitalizations (168 adult, 90 pediatric) within the catchment area. The incidence rate for adults was 24.7 hospitalizations per 100,000 population and for children was 43.0 hospitalizations per 100,000.

The MDCH Influenza Sentinel Hospital Network monitors influenza hospitalizations reported voluntarily by hospitals statewide. Reporting for the 2012-13 influenza season has concluded. 437 hospitalizations (278SE, 21SW, 64C, 74N) were reported by 12 hospitals during the 2012-13 season.

Laboratory Surveillance (as of August 31): During August 25-31, 1 positive influenza A/H3N2v result was reported by MDCH. For the 2012-13 season (starting Sept. 30, 2012), MDCH has identified 685 influenza results:

- Influenza A(H3): 500 (124SE, 169SW, 169C, 38N)
- Influenza A(H3N2)v: 1 (1SW)
- Influenza A(H1N1)pdm09: 39 (22SE, 4SW, 10C, 3N)
- Influenza B: 153 (30SE, 31SW, 74C, 18N)
- Parainfluenza: 8 (3SW, 1C, 4N)
- RSV: 1 (1N)
- Adenovirus: 1 (1SW)
- hMPV: 2 (2SW)

6 sentinel labs (SE(2), SW(2), C(1), N(1)) reported for the week ending August 31, 2013. No labs reported influenza A or B, parainfluenza, RSV, adenovirus or hMPV activity. All sites remain at very low testing volumes.

Michigan Influenza Antigenic Characterization (as of September 5): For the 2012-13 season, 120 Michigan influenza B specimens have been characterized at MDCH BOL. 101 specimens are B/Wisconsin/01/2010-like, matching the B component of the 2012-13 influenza vaccine. 19 influenza B specimens were characterized as B/Brisbane/60/2008-like, which is not included in the 2012-13 vaccine.

Michigan Influenza Antiviral Resistance Data (as of September 5): For the 2012-13 season, 34 influenza A/H3 specimens and 27 influenza A(H1N1)pdm09 specimens have been tested at the MDCH BOL for antiviral resistance. None of the influenza isolates tested have been resistant.

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 September 5): 7 pediatric influenza-associated influenza mortalities (3 A/H3, 4B) have been reported for the 2012-13 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 29): 112 respiratory outbreaks (22SE, 30SW, 41C, 19N) have been reported to MDCH during the 2012-13 season; testing results are listed below.

- Influenza A/H3: 16 (7SW, 9C)
- Influenza A: 55 (10SE, 13SW, 20C, 12N)
- Influenza B: 8 (1SE, 3SW, 2C, 2N)
- Influenza A and B: 2 (1SE, 1SW)
- Influenza A/H3 and B: 1 (1C)
- Influenza positive: 4 (1SE, 1SW, 2C)
- Influenza and RSV positive: 1 (1C)
- Influenza B and RSV positive: 1 (1SE)
- hMPV: 1 (1SW)
- Negative/no testing: 23 (8SE, 4SW, 6C, 5N)

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], August 30): Influenza activity in the northern hemisphere temperate zones remained at inter-seasonal levels. In most parts of tropical Asia influenza activity decreased. In Central America and the Caribbean, influenza and Respiratory Syncytial Virus (RSV) transmission declined. RSV, influenza A(H1N1)pdm09 and influenza A(H3N2) were the main respiratory viruses reported. In tropical South America, influenza A(H1N1)pdm09 virus predominated. A significant increase in influenza A(H1N1)pdm09 activity was observed in Peru in the middle of July, while influenza activity in general decreased in Venezuela, Ecuador and Brazil. Influenza activity peaked in the temperate areas of South America and in South Africa in late June. Influenza activity in these areas was primarily associated with influenza A(H1N1)pdm09 virus throughout the season, with increasing influenza A(H3N2) virus detections observed towards the end. In Australia and New Zealand, numbers of influenza viruses detected and rates of influenza-like illness were lower than in previous years, but showed an increasing trend. Influenza A(H3N2) and type B were much more commonly detected than A(H1N1)pdm09 in both countries. As of 11 August, a total of 135 cases of influenza A(H7N9) virus infection were reported.

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 2012-2013 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 (The News-Gazette [edited], September 1): Officials at the Danville Correctional Center say that a respiratory virus, not influenza, was the illness that led to the lockdown of a housing unit at the center. As a result, the quarantine period for the affected inmates in the housing unit is expected to last at least another two weeks, according to Tom Shaer, director of communications for the Illinois Department of Corrections.

Shaer said on Sunday that extensive tests conducted at the Illinois Department of Public Health laboratory and other medical facilities determined the outbreak was caused by a respiratory virus. "This virus is in the Adenovirus class, and while not the flu, causes many similar symptoms," Shaer said in a written statement. "It usually runs its course over several days but is contagious for up to two weeks, the 'shedding period.'" Among the symptoms reported were fever, headache, sore throat, mild cough and some chest pains with deep breathing.

"The Danville Correctional Center health care staff identified very early that an outbreak was occurring, and appropriate isolation and quarantine techniques were immediately initiated," Shaer said. "The quarantine period shall be safe and prolonged: two weeks from the last identified case."

According to Shaer, there are 1,835 inmates at Danville Correctional Center, with the staff working to limit the number with the virus. The outbreak has been contained in one housing unit at the center.

The full article is online at <http://www.news-gazette.com/news/local/2013-09-01/respiratory-virus-identified-cause-lockdown-danville-correctional-center.html>.

National, Human (MMWR abstract, August 2): *Mycoplasma pneumoniae* Outbreak at a University - Georgia, 2012. Morb Mortal Wkly Rep. 2013 Aug 2;62(30):603-6.

On October 17, 2012, the Georgia Department of Public Health (DPH) was notified by the Fulton County Department of Health and Wellness that a local university, the Georgia Institute of Technology, was experiencing a pneumonia outbreak among students. DPH epidemiologists investigated to identify the etiology, find additional cases, and recommend control measures. Respiratory swabs collected from students with pneumonia and tested at CDC using a quantitative real-time polymerase chain reaction (qPCR) assay were positive for *Mycoplasma pneumoniae*. The university alerted students, faculty, and staff members to the outbreak and recommended prevention measures by e-mail, social media, and posters. A survey administered to students assessed illness prevention behaviors, outbreak awareness, and communication preferences. Eighty-three cases were diagnosed among students during September 1–December 4, 2012, making this outbreak the largest reported at a U.S. university in 35 years. No cases were reported among faculty or staff members. Of the 83 patients, 19 had specimens tested by qPCR, of which 12 (63%) were positive for *M. pneumoniae*. Despite university communication efforts, approximately half of students surveyed were unaware of the outbreak when surveyed in December. DPH recommendations included implementing university policies that facilitate students staying home and seeking medical care when ill and refining health messages and communication methods to improve awareness of disease outbreaks among students.

The full article is online at www.cdc.gov/mmwr/preview/mmwrhtml/mm6230a2.htm?s_cid=mm6230a2_w.

International, Human (Reuters [edited], September 2): A man who works with poultry in Italy has tested positive for avian influenza following outbreaks among birds on farms in the northern Emilia Romagna region, the Italian Health Ministry said on Monday.

Italian authorities have been culling thousands of birds since the discovery of the H7N7 strain on several farms in August, the first outbreaks of highly pathogenic avian influenza in Italian poultry since 2000.

The Ministry said the affected man, who was exposed to sick poultry during work in contaminated areas, has contracted conjunctivitis as a result of his infection. It said the H7N7 strain can be passed only to humans who come into direct contact with diseased animals and usually has mild effects on humans, such as conjunctivitis. Human-to-human transmission is extremely rare, it added.

So far, outbreaks of the influenza among poultry have been found at four locations, the ministry said. They include two egg-producing farms, totaling a population of roughly 700,000 laying hens. Authorities have set up protection and surveillance zones around affected areas, which include movement restrictions on poultry and poultry products and ongoing veterinary checks.

The full article is online at www.reuters.com/article/2013/09/02/italy-birdflu-idUSL6N0GY35B20130902.

International, Human (WHO [edited], September 5): The Ministry of Health (MoH) of the Kingdom of Cambodia wishes to advise members of the public that one new human case of avian influenza has been confirmed for the H5N1 virus. This is the 18th case this year and the 39th person to become infected with the H5N1 virus in Cambodia. Of the 39 confirmed, 28 were children under 14, and 22 of the 39 were female. In addition, only 8 cases out of the 18 cases this year survived.

The 18th case, a 15-month-old boy from village number 11, Sangkat Tuol Sangke, Khan Russey Keo, Phnom Penh municipality confirmed positive for human H5N1 avian influenza on 30th August 2013 by Instiut Pasteur du Cambodge. The child developed fever on 16th August and his family initially sought treatment in a private clinic. His condition later worsened and the child was admitted to Kantha Bopha Hospital on 26th August with fever, cough, diarrhea, sneezing, lethargy and dyspnea. Laboratory samples were taken and Tamiflu administered on 27th August. The boy is in a stable condition.

The full update is online at <http://www.wpro.who.int/mediacentre/releases/2013/20130905/en/index.html>.

International, MERS-CoV (WHO [edited], August 29): WHO has been informed of an additional two laboratory-confirmed cases of MERS-CoV infection in Qatar.

The patients include a 59-year old man with an underlying medical condition who became ill on 15 August 2013. He is currently hospitalised and is in stable condition.

Preliminary epidemiological investigations reveal that the patient travelled to Medina, Saudi Arabia for 6 days and returned to Qatar on 15 August 2013. He did not take part in Umrah and did not visit to Al-Masjid an-Nabawi in Medina. Further investigation is on-going.

The second patient is a 29-year-old man with an underlying medical condition who had no history of recent travel outside the country.

The results of both the cases were confirmed by an international reference laboratory. A total of 138 healthcare workers, family and community contacts have been screened in the country and so far all tested negative for MERS-CoV infection.

Globally, from September 2012 to date, WHO has been informed of a total of 104 laboratory-confirmed cases of infection with MERS-CoV, including 49 deaths.

The complete update is available online at http://www.who.int/csr/don/2013_08_29/en/index.html.

International, MERS-CoV (WHO [edited], August 30): WHO has been informed of an additional four laboratory-confirmed cases of MERS-CoV infection in Saudi Arabia.

The first patient is a 55-year-old man with an underlying medical condition from Medina who became ill on 17 August 2013 and is currently hospitalised.

The second patient is a 38-year-old man with an underlying medical condition from Hafar al-Batin who became ill on 8 August 2013 and died on 17 August 2013.

The third and the fourth cases are family contacts of the second patient. Both the cases, a 16-year-old boy and a seven year-old girl, tested positive for the MERS-CoV virus. They are both healthy and do not have any symptoms of illness.

Globally, from September 2012 to date, WHO has been informed of a total of 108 laboratory-confirmed cases of infection with MERS-CoV, including 50 deaths.

The complete update is available online at http://www.who.int/csr/don/2013_08_30/en/index.html.

International, MERS-CoV (CIDRAP [edited], September 5): Scientists have found more evidence that many camels in the Middle East have been exposed to the Middle East respiratory syndrome coronavirus or a close relative, increasing the suspicion that camels may have spread the virus to humans.

In serologic tests on 110 dromedary camels in Egypt, one test showed that 94% of them had antibodies to MERS-CoV, and a second test revealed antibodies in 98%, according to a report in today's issue of *Eurosurveillance*. Tests of humans, water buffaloes, cows, and other domestic animals in Egypt and Hong Kong showed no MERS-CoV antibodies.

"The antibody titres were very high" in both sets of tests, "suggesting that the virus infecting these camels was MERS-CoV virus itself or a very closely related virus," says the report by a team of Chinese, Egyptian, and American scientists.

The findings echo those published last month by a team from the Netherlands and Germany, who tested 50 dromedaries in Oman and found that all had antibodies to MERS-CoV or a close relative. They also found that 14% of a sample of camels in the Canary Islands had similar antibodies.

Which animals harbor the MERS virus and which ones passed, or are passing, it to humans remains a mystery. Although the antibody findings indicate that camels probably have been exposed to MERS-CoV or a very similar virus, scientists have not yet isolated the virus itself from camels or any other animals.

The full article is available online at <http://www.cidrap.umn.edu/news-perspective/2013/09/study-reveals-more-signs-mers-cov-camels>.

The original research article is online at www.eurosurveillance.org/ViewArticle.aspx?ArticleId=20574. Citation: Perera RA, et al. Seroepidemiology for MERS coronavirus using microneutralisation and pseudoparticle virus neutralisation assays reveal a high prevalence of antibody in dromedary camels in Egypt, June 2013. *Euro Surveill.* 2013;18(36):pii=20574.

For questions or to be added to the distribution list, please contact Susan Peters at peterss1@michigan.gov

MDCH Contributors

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Table. H5N1 Influenza in Humans – As of August 29, 2013. http://www.who.int/influenza/human_animal_interface/EN_GIP_20130829CumulativeNumberH5N1cases.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	17	10	38	29
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	1	1	193	161
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	27	18	637	378