



MI Flu Focus

Influenza Surveillance Updates
Bureaus of Epidemiology and Laboratories

Michigan Department
of Community Health



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Updates of Interest

- **National:** CDC updates its antiviral treatment guidelines for human cases of avian influenza H7N9
- **International:** The Saudi Ministry of Health reports three new human cases of MERS-CoV

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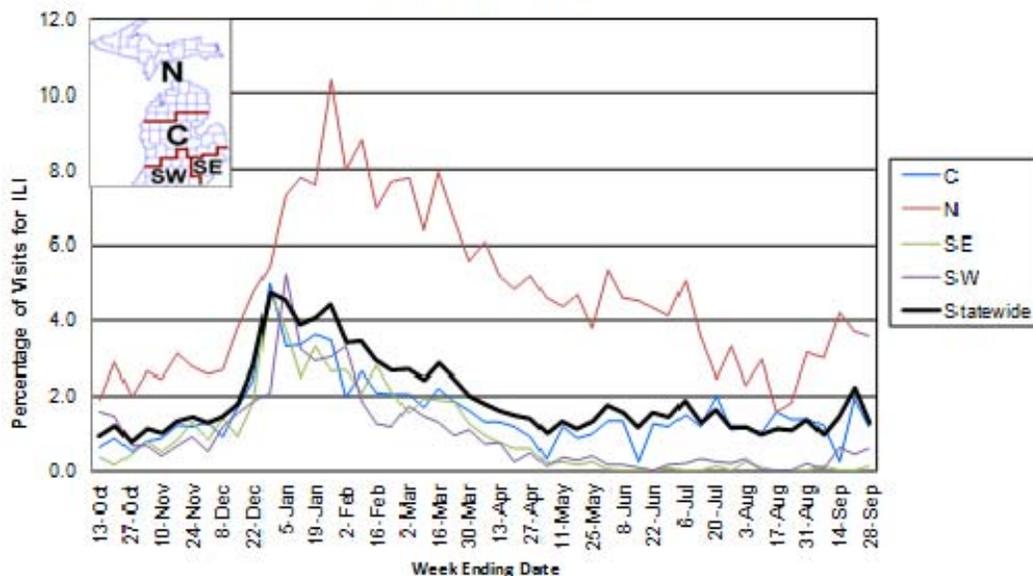
Influenza Surveillance Reports

Michigan Disease Surveillance System (as of October 3): MDSS influenza data for the week ending September 28, 2013 indicated that compared to levels from the previous week, aggregate reports increased, while individual reports remained steady at very low levels. Both aggregate and individual reports are similar to levels seen during the same time period last year.

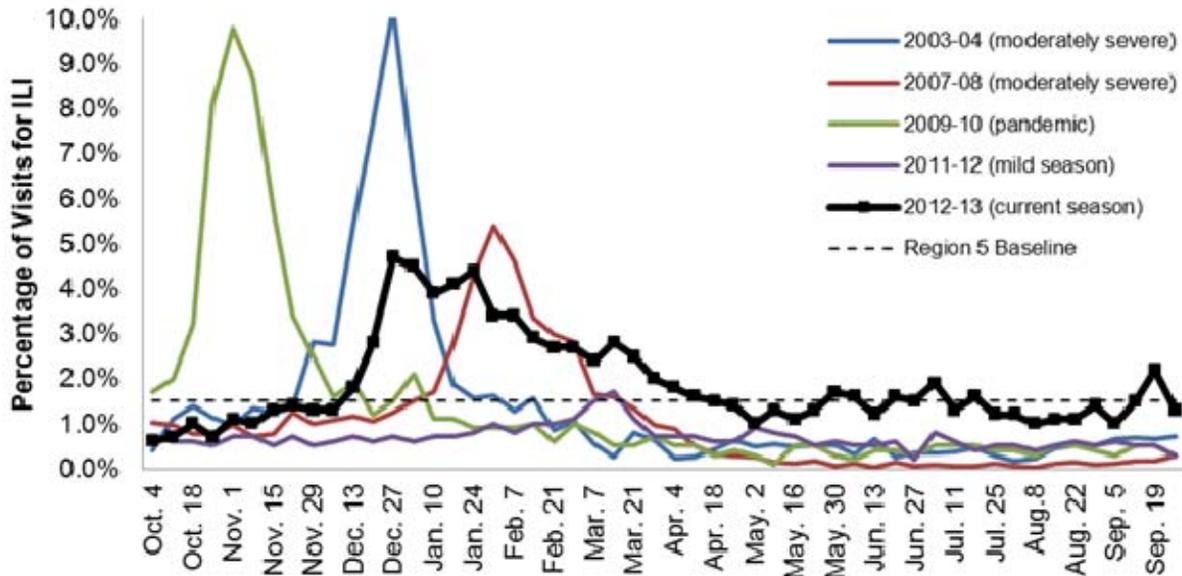
Emergency Department Surveillance (as of October 3): Emergency department visits due to both constitutional and respiratory complaints were similar to levels from the previous week. Emergency department visits from constitutional complaints were similar to levels during the same time period last year, while respiratory complaints were slightly lower. In the past week, there were 6 constitutional alerts in the SW(1), C(4) and N(1) Influenza Surveillance Regions and 9 respiratory alerts in the SW(3), C(5) and N(1) Regions.

Sentinel Provider Surveillance (as of October 3): During the week ending September 28, 2013, the proportion of visits due to influenza-like illness (ILI) decreased to 1.3% overall; this is below the regional baseline (1.5%). A total of 115 patient visits due to ILI were reported out of 8,895 office visits. Data were provided by 26 sentinel sites from the following regions: Central (8), North (5), Southeast (10), and Southwest (3). ILI activity decreased in two regions: C (1.2%) and N (3.6%) and increased in two regions: SE (0.1%) and SW (0.6%). 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 October 3): 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. Reporting for the 2013-14 influenza season starts on September 30, 2013.

Laboratory Surveillance (as of September 28): During September 22-28, 1 positive influenza A/H3 result (1SE) was reported by MDCH. For the 2012-13 season (starting Sept. 30, 2012), MDCH has identified 690 influenza results:

- Influenza A(H3): 501 (125SE, 169SW, 169C, 38N)
- Influenza A(H3N2)v: 2 (2SW)
- Influenza A(H1N1)pdm09: 42 (24SE, 4SW, 11C, 3N)
- Influenza B: 153 (30SE, 31SW, 74C, 18N)
- Parainfluenza: 8 (3SW, 1C, 4N)
- RSV: 1 (1N)
- Adenovirus: 1 (1SW)
- hMPV: 3 (3SW)

9 sentinel labs (SE, SW, C) reported for the week ending September 28, 2013. No labs reported influenza A or B, RSV, parainfluenza, adenovirus or hMPV activity. Most sites remain at very low testing volumes.

Michigan Influenza Antigenic Characterization (as of October 3): 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 October 3): 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 October 3): 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 October 3): 115 respiratory outbreaks (23SE, 30SW, 42C, 20N) 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)
- Mycoplasma pneumoniae: 1 (1SE)
- Negative/no testing: 25 (8SE, 4SW, 7C, 6N)

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], September 30): Influenza activity in the northern hemisphere temperate zones remained at inter-seasonal levels. In most regions of tropical Asia influenza activity decreased, with the exception of Hong Kong Special Administrative Region, China, where influenza activity associated with A(H3N2) viruses increased. In the Caribbean region of Central America and tropical South America the influenza season appeared to have come to an end. Acute respiratory infections continued to decline. Respiratory Syncytial Virus predominated, and influenza A(H1N1)pdm09 and influenza A(H3N2) were the main respiratory viruses reported since May of this year. Influenza activity peaked in the temperate countries of South America and in South Africa in late June. Influenza activity in these areas was primarily associated with influenza A(H1N1)pdm09 throughout the season, but since July greater numbers of influenza A(H3N2) and influenza type B viruses were observed. Australia and New Zealand had a late start of a season in August. Influenza activity seemed to decrease in mid-September in Australia. Co-circulation of influenza A(H3N2), influenza A(H1N1)pdm09 and type B 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.

International, Vaccine Selection (WHO, September 26): It is recommended that trivalent vaccines for use in the 2014 influenza season (southern hemisphere winter) contain the following:

- an A/California/7/2009 (H1N1)pdm09-like virus^a;
- an A/Texas/50/2012 (H3N2)-like virus^b;
- a B/Massachusetts/2/2012-like virus.

It is recommended that quadrivalent vaccines containing two influenza B viruses contain the above three viruses and a B/Brisbane/60/2008-like virus.

^a A/Christchurch/16/2010 is an A/California/7/2009-like virus.

^b A/Texas/50/2012 is an A(H3N2) virus that following adaptation to growth in eggs has maintained antigenic properties similar to the majority of recently circulating cell-propagated A(H3N2) viruses including A/Victoria/361/2011.

The article is online at www.who.int/influenza/vaccines/virus/recommendations/2014_south/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 (CDC [edited], September 30): Interim Guidance on the Use of Antiviral Agents for Treatment of Human Infections with Avian Influenza A (H7N9) Virus

This document replaces “Interim Guidance on the Use of Antiviral Agents for Treatment of Human Infections with Avian Influenza A (H7N9) Virus” posted on April 18, 2013. Since that date, a [Health Advisory](#) with updated recommendations for testing and updated [case definitions for H7N9 virus infection](#) were released to reflect current epidemiology of H7N9 cases and risk assessment for infection. This guidance on antiviral treatment has been updated to be consistent with current CDC and World Health Organization recommendations, and provides updated recommendations for antiviral treatment of confirmed cases and probable cases of human infection with avian influenza A (H7N9), as well as cases under investigation for human infection with avian influenza A (H7N9) virus in the United States. The previous guidance recommended antiviral treatment for all confirmed cases, probable cases, and cases of H7N9 under investigation. The new guidance continues to recommend treatment for all hospitalized H7N9 cases, and for confirmed and probable outpatient H7N9 cases. The primary change in the new guidance is that outpatient cases under investigation who have had recent close contact with a confirmed H7N9 case should receive antiviral treatment, whereas outpatients meeting only the travel exposure criteria for a case under investigation are not recommended to receive antiviral treatment

The full updated guidance is available online at www.cdc.gov/flu/avianflu/h7n9-antiviral-treatment.htm.

International, MERS-CoV (Saudi Ministry of Health press release, September 27): Within the framework of the constant monitoring and epidemic surveillance of the novel Coronavirus (MERS-CoV), the Ministry of Health (MOH) has announced that three new cases have been recorded.

The first case is for a 87-year-old female citizen, who has been suffering some chronic diseases. She is currently at the ICU, receiving the proper treatment.

The second case is for a 53-year-old female citizen, who also has been suffering some health diseases, and still at the ICU, receiving the proper treatment.

The third case is for a 63-year-old male citizen, who has been suffering some chronic diseases, and still at the ICU, receiving the proper treatment. May Allah grant them speedy recovery.

The press release is available online at <http://www.moh.gov.sa/en/CoronaNew/PressReleases/Pages/mediastatement-2013-09-27-001.aspx>.

International, MERS-CoV (Eurosurveillance abstract, September 26): Penttinen PM, Kaasik-Aaslav K, Friaux A, Donachie A, Sudre B, Amato-Gauci AJ, Memish ZA, Coulombier D. Taking stock of the first 133 MERS coronavirus cases globally – Is the epidemic changing? . Euro Surveill. 2013;18(39):pii=20596.

Since June 2012, 133 Middle East respiratory syndrome coronavirus (MERS-CoV) cases have been identified in nine countries. Two time periods in 2013 were compared to identify changes in the epidemiology. The case-fatality risk (CFR) is 45% and is decreasing. Men have a higher CFR (52%) and are over-represented among cases. Thirteen out of 14 known primary cases died. The sex-ratio is more balanced in the latter period. Nosocomial transmission was implied in 26% of the cases.

The full article is available online at <http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=20596>.

International, Research (CIDRAP, October 2): Researchers who used a sophisticated modeling approach incorporating H7N9 case data from China found hints that the virus has low transmission potential and that the pace of infection slowed in April after officials closed live-bird markets. The study, published in *BMC Medicine* today, was conducted by a team from the National Institutes of Health, Arizona State University, and George Washington University.

The investigators used a Bayesian modeling technique to assess if the outbreak had a reproduction (R) number consistent with unsustainable human transmission and if interventions reduced transmission. They compared their estimates with other zoonotic pathogens, including H5N1 avian influenza, variant H3N2 (H3N2v) flu, and Nipah virus.

Based on 130 lab-confirmed cases reported in China from March through May 20, their analysis found that transmission was low in Shanghai and Zhejiang province, and at 0.6 the R was well below the 1.0 level needed to sustain transmission. Researchers also found that the growth rate slowed in mid April,

which coincided with the closure of live-bird markets in large Chinese cities in early April. Compared with other zoonotic threats, the transmission threat from H7N9 was lower.

The authors said that, although the findings were based on a small number of cases and need to be confirmed, the modeling technique could be useful for measuring outbreak progression and the impact of control measures in the months ahead and provides a tool for monitoring pandemic potential in near real-time.

The article is available online at www.cidrap.umn.edu/news-perspective/2013/10/flu-scan-oct-02-2013.
The manuscript abstract is available online at <http://www.biomedcentral.com/1741-7015/11/214/abstract>.

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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