MI Flu Focus

Influenza Surveillance Updates
Bureaus of Epidemiology and Laboratories

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Updates of Interest:

- **Michigan**: Michigan is monitoring for cases of enterovirus D68. There are no confirmed cases in Michigan to date.
- **National:** Clusters of Enterovirus D68 are being investigated in several states.

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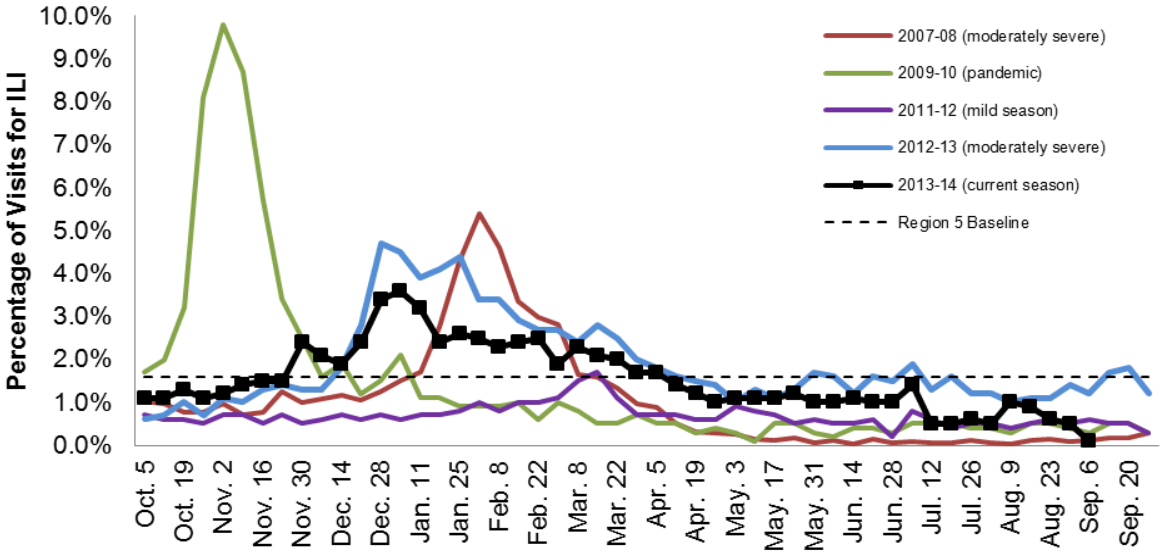
Influenza Surveillance Reports

Michigan Disease Surveillance System (as of September 11): MDSS influenza data for the week ending September 6, 2014 indicated that compared to levels from the previous week, individual reports remained steady at very sporadic levels while aggregate reports increased slightly. Individual and aggregate reports are lower than levels seen during the same time period last year.

Emergency Department Surveillance (as of September 11): Emergency department visits due to respiratory complaints increased considerably during the week ending September 6, 2014. Compared to levels from the week prior, emergency department visits from constitutional complaints remained steady. Respiratory complaints are significantly higher than levels reported during the same time period last year, while constitutional complaints are comparable to levels reported during the same time period last year. In the past week, there were 9 constitutional alerts in the SW(4), C(4), and N(1) Influenza Surveillance Regions and 10 respiratory alerts including one statewide alert and alerts in the SE (1), SW (2), and C(6) Regions.

Sentinel Provider Surveillance (as of September 11): During the week ending September 6, 2014, the proportion of visits due to influenza-like illness (ILI) decreased to 0.1% overall; this is below the regional baseline (1.6%). A total of 3 patient visits due to ILI were reported out of 3,218 office visits. Data were provided by 14 sentinel sites from the following regions: Central (4), North (1), and Southeast (9). No reports were submitted from the Southwest region. ILI activity increased in one region: SE (0.1%). ILI activity remained the same in one region: N (0.0%). ILI activity decreased in one region: C (0.2%). Please note: These rates may change as additional reports are received.

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 September 11): 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 and ending April 30, 2014, for Clinton, Eaton, Genesee, and Ingham counties. There are 254 influenza hospitalizations (74 pediatric, 180 adult) within the catchment area for 2013-14. Based on these counts, within the catchment area there are 35.4 pediatric influenza hospitalizations/100,000 population and 26.4 adult influenza hospitalizations/100,000.

The MDCH Influenza Sentinel Hospital Network monitors influenza hospitalizations reported voluntarily by hospitals statewide. Reporting for the 2013-14 season has concluded. 458 hospitalizations were reported during September 29, 2013-April 26, 2014.

Laboratory Surveillance (as of September 6): During August 17-September 6, 1 positive A/H3 (SE) and 1 B (1SW) influenza results were reported by MDCH Bureau of Laboratories. For the 2013-14 season (starting Sept. 29, 2013), MDCH has identified 414 positive influenza results:

- Influenza 2009 A/H1N1pdm: 340 (77SE,132SW,94C,38N)
- Influenza A/H3: 35 (16SE,12SW,6C, 1N)
- Influenza A unsubtypable: 1 (1SE)
- Influenza A and B (LAIV recovery): 1 (1SE)
- Influenza B: 42 (11SE,16SW,9C,6N)
- RSV: 2 (2SW)
- Adenovirus: 2 (1SE,1SW)
- Parainfluenza: 3 (1SE,2SW)
- Human metapneumovirus: 4 (4SW)

10 sentinel labs (3SE, 2SW, 4C, 1N) reported for the week ending September 6, 2014. No labs reported influenza A activity. One lab (C) reported sporadic influenza B activity. One lab (SE) reported sporadic Parainfluenza activity and one lab (SW) reported sporadic RSV activity. No labs reported adenovirus or hMPV activity. Most testing volumes are at low or very low levels, with a few showing small increases. One lab (SE) was at moderate testing levels.

Michigan Influenza Antigenic Characterization (as of September 11): For the 2013-14 season, 3 Michigan influenza specimens (1SE,2C) have been characterized at CDC as A/California/07/2009-like/H1N1/pdm09, matching the influenza A/H1N1pdm09 strain in the 2013-14 Northern Hemisphere vaccine. 2 specimens (2C) have been characterized at CDC and MDCH as B/Brisbane/60/2008-like, which is a B/Victoria lineage virus; it is not in the 2013-14 Northern Hemisphere trivalent vaccine but is in the quadrivalent vaccine. 29 specimens (7SE,11SW,6C,5N) have been characterized at CDC and MDCH as B/Massachusetts/02/2012-like, which is a B/Yamagata lineage virus that is included in the 2013-14 trivalent and quadrivalent vaccines.

Michigan Influenza Antiviral Resistance Data (as of September 11): For the 2013-14 season, 123 2009 A/H1N1pdm (33SE,37SW,41C,12N) and 15 A/H3 (6SE,7SW,2C) influenza specimens have been tested at the MDCH BOL for antiviral resistance. None of the influenza specimens 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 11): 3 pediatric influenza-associated influenza mortalities (1SE,2C) 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.

Influenza Congregate Settings Outbreaks (as of September 11): One new respiratory outbreak in a SE Region long-term care facility was reported to MDCH during the previous weeks; an investigation is currently underway. 25 respiratory outbreaks (3SE,11SW,8C,3N) have been reported to MDCH during the 2013-14 season:

- Influenza 2009 A/H1N1pdm: 4 (1SE,2SW,1C)
- Influenza A/H3: 1 (1SW)
- Influenza A: 4 (3SW,1C)
- Influenza B: 3 (1SW,1C,1N)
- Influenza positive: 1 (1SW)
- Human metapneumovirus: 2 (1SE,1N)
- RSV: 1 (1SW)
- Parainfluenza: 1 (1SW)
- Negative/no testing: 7 (1SE,1SW,5C,1N)

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 8): Globally the influenza season is ongoing in the southern hemisphere. Elsewhere influenza activity remained low. In Europe and North America, overall influenza activity remained at inter-seasonal levels. In Africa (except the southern cone) and western Asia, influenza activity was low. In eastern Asia, influenza activity remained low in most countries with influenza A(H3N2) the main detected virus subtype. Influenza A(H3N2) and some influenza B activity continued in south China. In the southern hemisphere, the influenza season was ongoing. In the temperate zone of South America, influenza activity mainly associated with A(H3N2) virus decreased. In Australia and New Zealand, the influenza season was ongoing. Australia reported a sharp increase in activity associated with A(H1N1)pdm09 and A(H3N2) viruses in recent weeks with the highest number of influenza-like illness (ILI) rates and weekly notifications of influenza confirmed cases in the last 5 years. In South Africa the influenza season continued with A(H3N2) most frequently detected. Based on FluNet reporting (as of 4 September 2014, 13:35 UTC), during weeks 33 to 34 (10 August 2014 to 23 August 2014), National Influenza Centres (NICs) and other national influenza laboratories from 51 countries, areas or territories reported data. The WHO GISRS laboratories tested more than 26 262 specimens. 3222 were positive for influenza viruses, of which 2632 (81.7%) were typed as influenza A and 590 (18.3%) as influenza B. Of the sub-typed influenza A viruses, 416 (17.8%) were influenza A(H1N1)pdm09 and 1920 (82.2%) were influenza A(H3N2). Of the characterized B viruses, 88 (98.9%) belonged to the B-Yamagata lineage and 1 (1.1%) to the B-Victoria lineage.

The entire WHO report is available online at
www.who.int/influenza/surveillance_monitoring/updates/latest_update_GIP_surveillance/en/index.html

Weekly reporting of influenza activity to the CDC has ended for the 2013-2014 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.

National, Poultry (OIE [edited], August 27): Low pathogenic avian influenza H7; New Jersey, USA
Outbreak 1: Salem County, Salem, New Jersey; Date of start of the outbreak: 22 Aug 2014
Species: Birds; Susceptible: 48.
Affected population: the affected premises is a breeding farm and hunting preserve containing approximately 40 000 mallard ducks and approximately 7000 to 8000 pheasants.

International, Poultry (Emerging Infectious Diseases [abstract], September 4): Shi J, Deng G, Zeng X, Kong H, Wang X, Lu K, et al. Novel influenza A(H7N2) virus in chickens, Jilin Province, China, 2014. Emerg Infect Dis [Internet]. 2014 Oct.

In February 2014, while investigating the source of a human infection with influenza A(H7N9) virus in northern China, we isolated subtypes H7N2 and H9N2 viruses from chickens on the patient's farm. Sequence analysis revealed that the H7N2 virus is a novel reassortant of H7N9 and H9N2 viruses. Continued surveillance is needed.

The full article is available online at http://wwwnc.cdc.gov/eid/article/20/10/14-0869_article.

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/downld/AVIAN%20INFLUENZA/A_AI-Asia.htm.

International Human Surveillance (WHO): Reports of novel influenza activity in humans, including avian influenza A/H5N1 and A/H7N9, are available online at www.who.int/influenza/human_animal_interface/en/.

Michigan, Enterovirus (Press Release [edited], September 9): LANSING, Mich. – The Michigan Department of Community Health (MDCH) is receiving reports indicating an increase in severe respiratory illness in children ages 5-17 across the state. MDCH is working with local health departments and hospitals to investigate these cases. At this time, Michigan has no confirmed cases of enterovirus D68 (EV-D68) associated with the national outbreak, but MDCH is forwarding samples to the Centers for Disease Control and Prevention (CDC) for testing.

The full press release can be found at http://www.michigan.gov/minewswire/0,4629,7-136-3452-336978--,00.html

National (MMWR article [edited]): Midgley, CM, et al. Severe Respiratory Illness Associated with Enterovirus D68 — Missouri and Illinois, 2014. MMWR. September 12, 2014/63(36);798-799.

On August 19, 2014, CDC was notified by Children's Mercy Hospital in Kansas City, Missouri, of an increase (relative to the same period in previous years) in patients examined and hospitalized with severe respiratory illness, including some admitted to the pediatric intensive care unit. An increase also was noted in detections of rhinovirus/enterovirus by a multiplex polymerase chain reaction assay in nasopharyngeal specimens obtained during August 5–19. On August 23, CDC was notified by the University of Chicago Medicine Comer Children's Hospital in Illinois of an increase in patients similar to those seen in Kansas City. To further characterize these two geographically distinct observations, nasopharyngeal specimens from most of the patients with recent onset of severe symptoms from both facilities were sequenced by the CDC Picornavirus Laboratory. Enterovirus D68* (EV-D68) was identified in 19 of 22 specimens from Kansas City and in 11 of 14 specimens from Chicago. Since these initial reports, admissions for severe respiratory illness have continued at both facilities at rates higher than expected for this time of year. Investigations into suspected clusters in other jurisdictions are ongoing.

The full article is available online at http://www.cdc.gov/mmwr/pdf/wk/mm6336.pdf

International, Human (WHO [edited], September 4): On 2 September 2014, the National Health and Family Planning Commission of China notified WHO of 2 additional laboratory-confirmed cases of human infection with avian influenza A(H7N9) virus.

Details of the cases are as follows:

- A 66-year-old woman from Xinjiang Uyghur Autonomous Region. She had onset of symptoms on 14 July 2014, was admitted to a hospital on 17 July 2014, and died on 3 August 2014. The patient had a history of exposure to live poultry.

- A 53-year-old male from Xinjiang Uyghur Autonomous Region. He had onset of symptoms on 5 August and was admitted to a hospital on 9 August. He is currently in a mild condition. The patient has a history of exposure to live poultry.

The Chinese Government has taken the following surveillance and control measures:

1. Strengthen surveillance and situation analysis;
2. Reinforce case management and medical treatment;
3. Conduct risk communication with the public and release information.

The overall risk assessment has not changed.

The full update is available online at http://www.who.int/csr/don/2014_09_04_avian_influenza/en/

For questions or to be added to the distribution list, please contact Sally Bidol at BidolS@michigan.gov

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