



MI FluFocus

Influenza Surveillance Updates
Bureaus of Epidemiology and Laboratories



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Surveillance and Infectious Disease Epidemiology

June 9, 2011
Vol. 8; No. 22

Updates of Interest:

- **International:** The influenza season has finished in the temperate countries of the northern hemisphere with only sporadic influenza virus detections occurring
- **Research:** Almost half of all children hospitalized for 2009 H1N1 pandemic flu had asthma, compared with a third of kids hospitalized each year for seasonal flu

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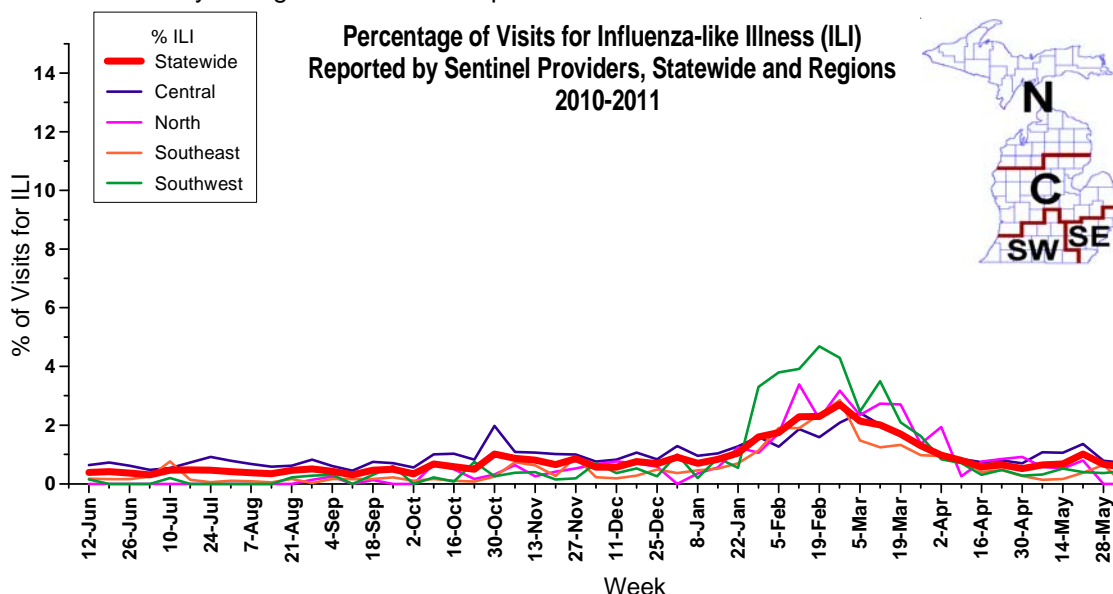
Influenza Surveillance Reports

Michigan Disease Surveillance System: MDSS data for the week ending June 4th indicated that aggregate reports decreased slightly when compared to the previous week, while individual reports remained steady at a very low level. Aggregate influenza cases are slightly lower than levels seen during the same time last year, while individual influenza cases are similar.

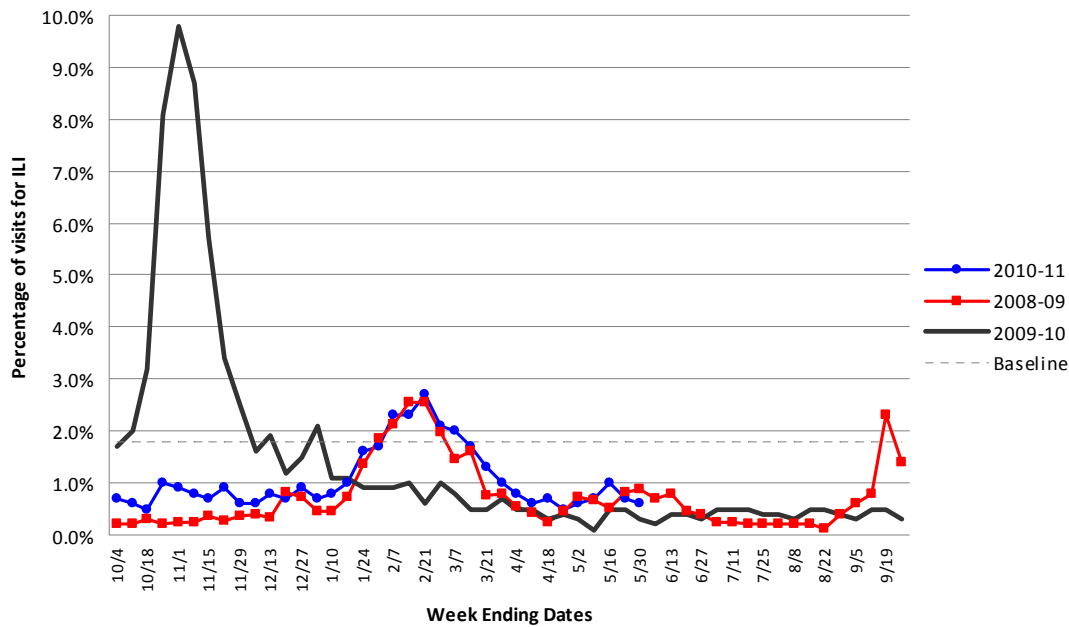
Emergency Department Surveillance: Compared to the previous week's levels, emergency department visits from constitutional complaints remained steady, while respiratory complaints decreased slightly. Constitutional complaints are slightly lower, and respiratory complaints are similar, than levels reported during the same time period last year. In the past week, there were three constitutional alerts in the SW(2) and C (1) Influenza Surveillance Regions and no respiratory alerts.

Over-the-Counter Product Surveillance: When compared to the previous week's data, sales of chest rubs decreased slightly, children's electrolytes had a mid-week rise, and all other indicators remained steady. When compared to this time last year, chest rub sales are slightly increased, while all other indicators are at similar levels.

Sentinel Provider Surveillance (as of June 9): During the week ending June 4, 2011, the proportion of visits due to influenza-like illness (ILI) decreased to 0.6% overall; this is below the regional baseline of 1.8%. A total of 39 patient visits due to ILI were reported out of 6,887 office visits. Twenty-seven sentinel sites provided data for this report. Activity decreased in two surveillance regions: Central (0.7%) and Southeast (0.0%); and remained the same in two regions: North (0.0%) and Southwest (0.4%). 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, 2008-2011**



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.

Hospital Surveillance: The total number of cases for the 2010-11 season is 51 adult and 49 pediatric cases, and the estimated influenza hospitalization incidence rate in the catchment area (Clinton, Eaton and Ingham counties) is 49 per 100,000 for children and 14 per 100,000 for adults.

Laboratory Surveillance (as of June 3): During May 29-June 3, no positive specimens were reported by MDCH Bureau of Laboratories. For the 2010-11 season (starting October 3, 2010), MDCH BOL has identified 359 influenza results:

- 2009 Influenza A/H1N1: 148
- Influenza A unsubtypeable: 1
- Influenza A/H3: 157
- Influenza B: 53

9 sentinel labs (SE, SW, C, N) reported for the week ending June 3, 2011. No labs reported influenza A positives, and one lab (SE) reported sporadic influenza B positives. 1 lab (SE) reported sporadic RSV positive results. Testing volumes are at very low levels.

Michigan Influenza Antigenic Characterization (as of June 9): One influenza A/H3 positive specimen, collected in January from the SE Region, was characterized at CDC as the A/H3/Perth/16/2009-like strain, which is the A/H3 component of the 2010-11 influenza vaccine. Five influenza B positive specimens, collected in March from the SE and SW Regions, were characterized at MDCH as the B/Brisbane/60/2008-like strain, which is the B component of the 2010-11 influenza vaccine.

Michigan Influenza Antiviral Resistance Data (as of June 9): One of the 24 Michigan influenza isolates tested for antiviral resistance at the CDC during the 2010-2011 season has been found to be resistant to oseltamivir (H275Y mutation present). This specimen was a 2009 influenza A/H1N1 positive specimen collected in early March; additional epidemiologic information is pending.

Antiviral resistance testing takes months to complete and cannot be used to guide individual patient treatment. However, 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 June 9): Six influenza-associated pediatric mortalities (2SE, 4C), one associated with flu A and five with flu B, have been reported to MDCH this season.

***CDC has asked states for information on any pediatric death associated with influenza. This includes not only any pediatric death (<18 years) resulting from a compatible illness with laboratory confirmation of influenza, but also any unexplained pediatric death with evidence of an infectious process. Please

immediately call MDCH to ensure proper specimens are obtained. View the complete MDCH protocol online at http://www.michigan.gov/documents/mdch/ME_pediatric_influenza_guidance_v2_214270_7.pdf.

Influenza Congregate Settings Outbreaks (as of June 9): One previously reported C Region outbreak from April was confirmed to have both RSV and parainfluenza 3 co-circulation. 24 total outbreaks have been reported to MDCH for the 2010-2011 season:

- Influenza A/H3: 11 (4SE, 3SW, 1C, 3N)
- Influenza A/H1N1 2009: 2 (2SW)
- Influenza A/H3 and B both found: 1 (SW)
- Influenza A and B both found: 1 (C)
- Influenza B: 1 (C)
- Influenza positive, subtype unknown: 1 (SW)
- RSV and parainfluenza 3: 1 (C)
- RSV: 1 (C)
- No testing or negative: 5 (2SE, 1SW, 2N)

National (CDC, June 3): Limited national surveillance data is updated weekly during the summer months at the following website: <http://www.cdc.gov/flu/weekly/>.

International (WHO [edited], June 3): The influenza season has finished in the temperate countries of the northern hemisphere with only sporadic influenza virus detections occurring. Transmission in tropical countries of the Americas and sub-Saharan Africa has continued to decline. South Africa has reported an increase in influenza virus detections, primarily influenza A(H1N1)2009, consistent with the start of their winter influenza season. Seasonal transmission does not appear to have started in other temperate countries of the southern hemisphere. A summary review of the northern hemisphere winter influenza season is now available as a [WER](#) or as an [expanded online version](#).

Countries in the temperate zone of the northern hemisphere

Influenza transmission in all reporting countries in the temperate regions of the northern hemisphere has now subsided to very low, intra-seasonal levels. Sporadic detections of influenza viruses have been reported in many countries across the northern temperate zone but no active community transmission has been noted.

Countries in the tropical zone

Very little influenza activity has been reported since the last update in tropical areas, though some localized transmission has been noted. Transmission has continued to occur in the Dominican Republic, all influenza A(H1N1)2009, and Jamaica, primarily influenza type B with smaller numbers of H1N1 (2009), but the numbers of cases are low and decreasing in both countries. An unconfirmed media account has reported that new cases of H1N1 (2009) were detected in Bolivia in late May along with an increase in severe respiratory infections. Many countries of the northern, tropical areas of South America report large numbers of respiratory disease in children, including hospital admissions for pneumonia, related to respiratory syncytial virus. Transmission in the tropical areas of sub-Saharan Africa has largely subsided to very low levels, including previously noted active transmission in Kenya and Ghana. Madagascar has continued to report small numbers of influenza type B, influenza A(H3N2), and influenza A(H1N1) 2009. Only sporadic detections of influenza viruses have been reported in the tropical countries of Asia.

Countries in the temperate zone of the southern hemisphere

South America: The National Institute for Communicable Diseases in South Africa has reported an increase in influenza viruses over the last four to five weeks consistent with the start of the influenza season. The large majority of viruses isolated have been influenza A(H1N1)2009 with a very small number of influenza A(H3N2).

Southern Africa: The National Institute for Communicable Diseases in South Africa has reported an increase in influenza viruses over the last four to five weeks consistent with the start of the influenza season. The large majority of viruses isolated have been influenza A(H1N1)2009 with a very small number of influenza A(H3N2).

Australia and New Zealand and South Pacific: The influenza season does not appear to have started yet in either Australia or New Zealand. Although Australia had previously noted unusual out-of-season influenza virus transmission, rates of detection have recently decreased and levels of influenza-like illness (ILI) have remained low in the majority of surveillance systems reporting. New Zealand has reported sporadic detections of influenza viruses, primarily H1N1 (2009) and influenza B, however weekly consultation rates for ILI have remained below baseline nationally.

The entire summary is available online at http://www.who.int/csr/disease/influenza/latest_update_GIP_surveillance/en/index.html

Map of International Activity (CDC): A Map of International Co-circulation of Seasonal Influenza is available online at <http://cdc.gov/flu/international/map.htm>.

Weekly reporting to the CDC has ended for the 2010-2011 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, Research (BMC Public Health abstract, June 7): Snowbirds and infection--new phenomena in pneumonia and influenza hospitalizations from winter migration of older adults: A spatiotemporal analysis. Kenneth K.H. Chui, Steven A. Cohen and Elena N. Naumova

Background: Despite advances in surveillance and prevention, pneumonia and influenza (P&I) remain among the leading causes of mortality in the United States. Elderly adults experience the most severe morbidity from influenza-associated diseases, and have the highest rates of seasonal migration within the U.S. compared to other subpopulations. The objective of this study is to assess spatiotemporal patterns in influenza-associated hospitalizations in the elderly, by time, geography, and intensity of P&I. Given the high seasonal migration of individuals to Florida, this state was examined more closely using harmonic regression to assess spatial and temporal patterns of P&I hospitalizations by state of residence.

Methods: Data containing all Medicare-eligible hospitalizations in the United States for 1991-2006 with P&I (ICD-9-CM codes 480-487) were abstracted for the 65+ population. Hospitalizations were classified by state of residence, provider state, and date of admissions, specifically comparing those admitted between October and March to those admitted between April and September. We then compared the hospitalization profile data of Florida residents with that of out-of-state residents by state of primary residence and time of year (in-season or out-of-season).

Results: We observed distinct seasonal patterns of nonresident P&I hospitalizations, especially comparing typical winter destination states, such as California, Arizona, Texas, and Florida, to other states. Although most other states generally experienced a higher proportion of non-resident P&I during the summer months (April-September), these states had higher nonresident P&I during the traditional peak influenza season (October-March).

Conclusions: This study is among the first to quantify spatiotemporal P&I hospitalization patterns in the elderly, focusing on the change of patterns that are possibly due to seasonal population migration. Understanding migration and influenza-associated disease patterns in this vulnerable population is critical to prepare for and potentially prevent influenza outbreaks in this vulnerable population.

National, Research (CIDRAP, June 7): Almost half of all children hospitalized for 2009 H1N1 pandemic flu had asthma, compared with a third of kids hospitalized each year for seasonal flu, according to a study yesterday in *Pediatrics*. Researchers from the US Centers for Disease Control and Prevention and 10 states found that 701 (32%) of 2,165 children hospitalized during the 2003 through 2009 influenza seasons had asthma, compared with 733 (44%) of 1,660 who had 2009 H1N1 flu. Hospitalized children with asthma who had pandemic 2009 H1N1 were more likely to require intensive care (22% vs 16%, $P = .01$) and have pneumonia (46% vs 40%, $P = .04$) compared with seasonal-flu patients. However, rates of respiratory failure (5%) and death (1%) were the same in both groups. Also, more children with influenza A, whether seasonal or pandemic, experienced asthma exacerbations compared with those who had influenza B (51% vs 29%, $P < .01$). The authors say the findings underscore the importance of vaccination in children with asthma.

The article is available online at <http://pediatrics.aappublications.org/content/early/2011/06/01/peds.2010-3343.abstract>.

International, Human (WHO, June 3): The Ministry of Health of Indonesia has announced a confirmed case of human infection with avian influenza A(H5N1) virus.

The case is an 1 year old female from North Jakarta district, DKI Jakarta Province. She developed symptoms on 3 April, and was referred to a hospital on 8 April. She has fully recovered.

One week prior to onset, the case went to the wet market with father to buy local chickens. The case handled chickens at the market.

Laboratory tests have confirmed infection with avian influenza A(H5N1) virus.

Of the 178 cases confirmed to date in Indonesia, 146 have been fatal.

International, Poultry (OIE [edited], May 31): Highly pathogenic avian influenza serotype H5N1

Country: Korea (Republic of)

Outbreak: Baekseok-ri, Misan-myeon, Yeoncheon-gun, Gyeonggi-Do

Date of start of the outbreak: 16 May 2011

Epidemiological unit: Farm

Species: Birds [poultry]; Susceptible: 15800; Cases: 650; Deaths: 650; Destroyed: 15150

Affected Population: chickens

Epidemiological comments: 2 outbreaks previously reported were resolved. Movement restrictions in those resolved outbreaks were lifted.

International, Research (CIDRAP, June 6): Two studies appearing in an *American Journal of Obstetrics and Gynecology (AJOG)* supplement showed that maternal influenza infection leads to lower birth weight in newborns. The first study looked at data from all singleton births in Nova Scotia from 1990 through 2002 and compared outcomes between women with and without hospital admission for respiratory illness during influenza season at any time during their pregnancies. Infants born to the hospitalized mothers were more likely to be small for gestational age (15.3% vs 9.7%) and to have a lower average birth weight by about 5 ounces (3,348 g [7 lb, 4 oz] vs 3,531 kg [7 lb, 9 oz]).

The article is available online at [http://www.ajog.org/article/S0002-9378\(11\)00517-5/fulltext](http://www.ajog.org/article/S0002-9378(11)00517-5/fulltext).

International, Research (American Journal of Epidemiology abstract, June 7): Guillain-Barré Syndrome, Influenzalike Illnesses, and Influenza Vaccination During Seasons With and Without Circulating A/H1N1 Viruses. Lamiae Grimaldi-Bensouda*, Annick Alperovitch, Gérard Besson, Christophe Vial, Jean-Marie Cuisset, Caroline Papeix, Olivier Lyon-Caen, Jacques Benichou, Michel Rossignol and Lucien Abenheim for the GBS-PGRx Study Group

The role of influenzalike illnesses and influenza vaccination in the development of Guillain-Barré syndrome (GBS), particularly the role of A/H1N1 epidemics and A/H1N1 vaccination, is debated. Data on all incident GBS cases meeting the Brighton Collaboration criteria that were diagnosed at 25 neurology centers in France were prospectively collected between March 2007 and June 2010, covering 3 influenzavirus seasons, including the 2009–2010 A/H1N1 outbreak. A total of 457 general practitioners provided a registry of patients from which 1,080 controls were matched by age, gender, index date (calendar month), and region to 145 cases. Causal relations were assessed by multivariate case-control analysis with adjustment for risk factors (personal and family history of autoimmune disorders, among others), while matching on age, gender, and calendar time. Influenza (seasonal or A/H1N1) or influenzalike symptoms in the 2 months preceding the index date was associated with GBS, with a matched odds ratio of 2.3 (95% confidence interval (CI): 0.7, 8.2). The difference in the rates of GBS occurring between influenza virus circulation periods and noncirculation periods was highly statistically significant ($P = 0.004$). Adjusted odds ratios for GBS occurrence within 6 weeks after seasonal and A/H1N1 vaccination were 1.3 (95% CI: 0.4, 4.1) and 0.9 (95% CI: 0.1, 7.6), respectively. Study results confirm that influenza virus is a likely risk factor for GBS. Conversely, no new concerns have arisen regarding influenza vaccination.

Michigan Wild Bird Surveillance (USDA, as of June 9): For the 2010 season (April 1, 2010–March 31, 2011), highly pathogenic avian influenza H5N1 has not been recovered from 40,659 samples tested nationwide, including 1283 Michigan samples (7 live bird, 1203 hunter-killed birds, 73 morbidity/mortality). For more information, visit <http://wildlifedisease.nbio.gov/ai/>.

To learn about avian influenza surveillance in Michigan wild birds or to report dead waterfowl, go to Michigan's 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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Table. H5N1 Influenza in Humans - Cases up to June 3, 2011. http://www.who.int/csr/disease/avian_influenza/country/cases_table_2011_06_3/en/index.html. Downloaded 6/1/2011. Cumulative number of lab-confirmed cases reported to WHO. Total cases includes deaths.

Country	2003		2004		2005		2006		2007		2008		2009		2010		2011		Total	
	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths
Azerbaijan	0	0	0	0	0	0	8	5	0	0	0	0	0	0	0	0	0	0	8	5
Bangladesh	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	3	0
Cambodia	0	0	0	0	4	4	2	2	1	1	1	0	1	0	1	1	5	5	15	13
China	1	1	0	0	8	5	13	8	5	3	4	4	7	4	2	1	0	0	40	26
Djibouti	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
Egypt	0	0	0	0	0	0	18	10	25	9	8	4	39	4	29	13	25	8	144	48
Indonesia	0	0	0	0	20	13	55	45	42	37	24	20	21	19	9	7	7	5	178	146
Iraq	0	0	0	0	0	0	3	2	0	0	0	0	0	0	0	0	0	0	3	2
Lao PDR	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	2	2
Myanmar	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
Nigeria	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	1	1
Pakistan	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	0	0	0	3	1
Thailand	0	0	17	12	5	2	3	3	0	0	0	0	0	0	0	0	0	0	25	17
Turkey	0	0	0	0	0	0	12	4	0	0	0	0	0	0	0	0	0	0	12	4
Viet Nam	3	3	29	20	61	19	0	0	8	5	6	5	5	5	7	2	0	0	119	59
Total	4	4	46	32	98	43	115	79	88	59	44	33	73	32	48	24	39	18	555	324