



MI Flu Focus

Influenza Surveillance Updates
Bureaus of Epidemiology and Laboratories



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Surveillance and Infectious Disease Epidemiology

August 2, 2012
Vol. 9; No. 30

Updates of Interest

- **National:** Additional human cases of variant influenza A (H3N2) associated with swine exposure are reported from Hawaii, Indiana and Ohio
- **National:** Research indicates that an avian strain of influenza A (H3N8) jumped from birds to seals in a 2011 outbreak

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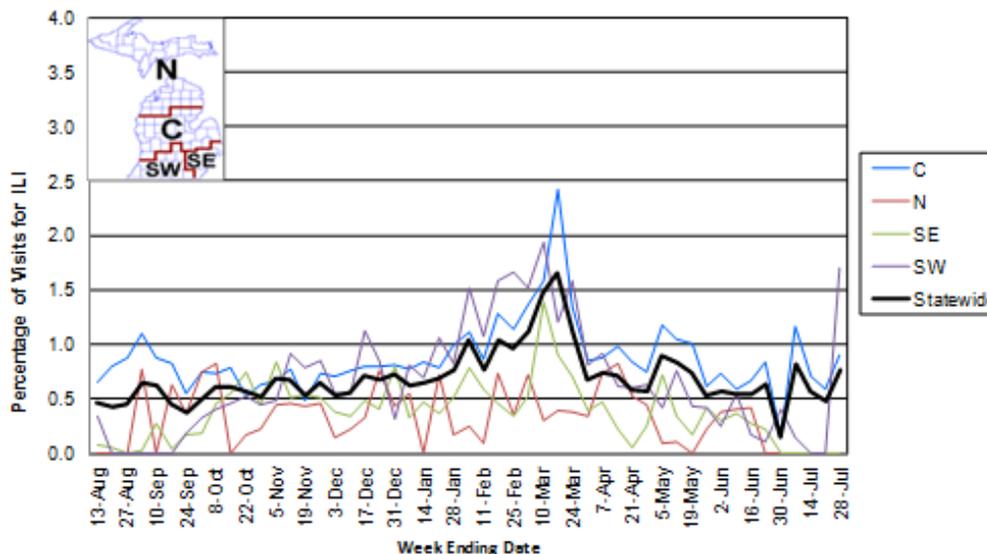
Influenza Surveillance Reports

Michigan Disease Surveillance System (as of August 2): MDSS data for the week ending July 28th indicated that compared to levels from the previous week, aggregate and individual reports remained steady at sporadic levels. Individual and aggregate reports are similar to levels seen during the same time period last year.

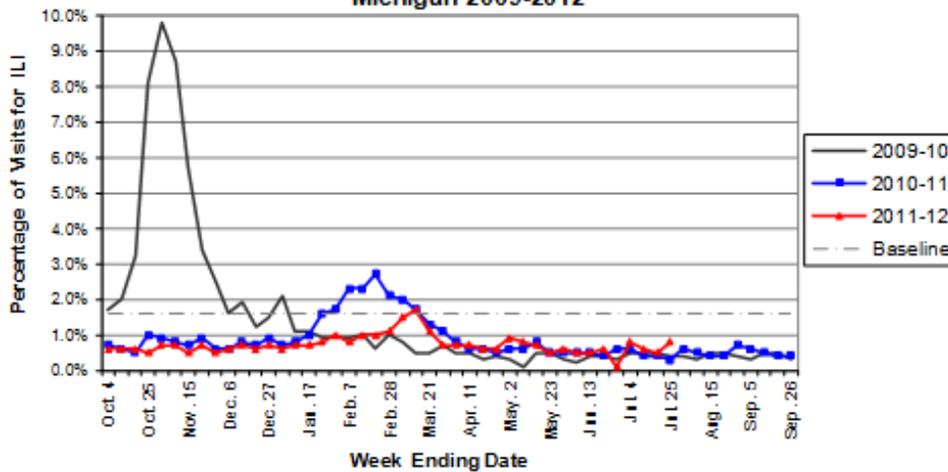
Emergency Department Surveillance (as of August 2): Compared to levels from the week prior, emergency department visits from both constitutional and respiratory complaints remained steady. Both constitutional and respiratory complaints are similar to levels reported during the same time period last year. In the past week, there were five constitutional alerts in the SE(2), SW(1), and C(2) Influenza Surveillance Regions and one respiratory alert in the C Region.

Sentinel Provider Surveillance (as of August 2): During the week ending July 28, 2012, the proportion of visits due to influenza-like illness (ILI) slightly increased to 0.8% overall; this is below the regional baseline of (1.6%). A total of 37 patient visits due to ILI were reported out of 4,386 office visits. Nineteen sentinel sites provided data for this report. ILI activity increased in two surveillance regions: Central (0.9%) and Southwest (1.7%). Please note the increase in the Southwest region is from one site reporting one ILI patient out of 59 patient visits. The remaining two surveillance regions continued to report no ILI activity: North (0.0%) and Southeast (0.0%). These rates may change as additional reports are received.

Percentage of Visits for Influenza-like Illness (ILI)
Reported by Sentinel Providers, Statewide and Regions
2010-2011 and 2011-12 Flu Seasons



Percentage of Visits for Influenza-like Illness (ILI) Reported by the US Outpatient Influenza-like Illness Surveillance Network (ILINet): Michigan 2009-2012



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 (as of July 28): The Influenza Hospitalization Surveillance Project provides population-based rates of severe influenza illness in Clinton, Eaton and Ingham counties. For the 2011-12 season, 27 influenza hospitalizations (9 adult, 18 pediatric) were reported in the catchment area.

The MDCH Influenza Sentinel Hospital Network monitors influenza hospitalizations reported voluntarily by hospitals statewide. 3 hospitals (SE, SW) reported for the week ending July 28, 2012. Results are listed in the table below.

| Age Group | Hospitalizations Reported During Current Week | Total Hospitalizations 2011-12 Season |
|--------------|---|---------------------------------------|
| 0-4 years | 0 | 21 |
| 5-17 years | 0 | 23 |
| 18-49 years | 0 | 32 |
| 50-64 years | 0 | 28 |
| ≥65 years | 0 | 43 |
| Total | 0 | 147 |

Laboratory Surveillance (as of July 28): During July 22-28, no positive influenza results were reported by MDCH BOL. For the 2011-12 season (starting Oct. 2, 2011), MDCH has identified 1166 influenza results:

- Influenza A(H3): 1054 (607SE, 97SW, 303C, 47N)
- Influenza A(H1N1)pdm09: 32 (22SE, 3SW, 5C, 2N)
- Influenza B: 79 (30SE, 32SW, 12C, 5N)
- Influenza A(H3) and B co-infection: 1 (SE)
- Parainfluenza: 2 (1SE, 1C)
- Adenovirus: 3 (3SE)
- RSV: 4 (1SW, 1C, 2N)

6 sentinel labs (SE, SW, C) reported for the week ending July 28, 2012. Two labs (SE, C) reported sporadic RSV activity. No labs reported influenza A, influenza B, parainfluenza, adenovirus or HMPV activity. Testing volumes are at very low levels.

Michigan Influenza Antigenic Characterization (as of August 2): For the 2011-12 season, 69 Michigan influenza B viruses have been characterized at MDCH. 8 viruses are B/Brisbane/60/2008-like (included in the 2011-12 vaccine). 61 are B/Wisconsin/01/2010-like (not included in the 2011-12 vaccine).

Michigan Influenza Antiviral Resistance Data (as of August 2): For the 2011-12 season, 26 Michigan influenza A(H1N1)pdm09 specimens and 95 influenza A(H3) specimens have been tested for antiviral resistance at MDCH Bureau of Laboratories; all have tested negative for oseltamivir resistance. 11 Michigan influenza A(H3N2), 2 influenza A(H1N1)pdm09, and 4 influenza B specimens have been tested for antiviral resistance at the CDC; all have tested negative for oseltamivir and zanamivir 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 August 2): No pediatric influenza-associated influenza mortalities have been reported to MDCH for the 2011-12 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 2): One new respiratory outbreak (N) was reported to MDCH during the previous week; an investigation is ongoing. 30 respiratory outbreaks (5SE, 3SW, 20C, 2N) have been reported to MDCH during the 2011-12 season; testing results are listed below.

- Influenza A/H3: 15 (4SE, 1SW, 10C)
- Influenza A: 2 (2C)
- Human metapneumovirus: 1 (SW)
- Negative or not tested: 12 (1SE, 1SW, 8C, 2N)

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

International (WHO [edited], July 20): The influenza season is largely finished in the temperate countries of the northern hemisphere and most countries in the northern temperate zone have stopped weekly reporting or moved over to out of season surveillance schedules. In the tropical zone, the countries to report notable influenza activity are Bolivia, Brazil, and Honduras in the Americas; Ghana in sub-Saharan Africa; southern China, including Hong Kong Special Administrative Region, and Viet Nam in Asia. The influenza season has commenced in most temperate countries of the southern hemisphere. In Argentina, however, influenza remains nearly undetectable. Influenza A(H3N2) viruses were the most commonly reported type/sub-type in recent weeks in the Southern Hemisphere temperate region in Chile, South Africa, and Australia; however, significant numbers of influenza type B were also reported in South Africa and to a lesser extent, Australia. Very few influenza A(H1N1)pdm09 viruses have been reported with exception of Paraguay and some countries in Central and tropical South America.

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 2011-2012 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 (Ohio Department of Health press release, August 1): The Ohio Departments of Health (ODH) and Agriculture (ODA), along with the Butler County Health Department are actively investigating human illnesses associated with the Butler County Fair. Preliminary laboratory results on ten samples indicate similarities to the influenza virus, (H3N2)v. All individuals in Butler County's investigation had direct contact with swine, however the Centers for Disease Control and Prevention (CDC) have not yet confirmed any of the cases.

Butler County Health Department continues to collect information and is working with ODH and CDC to determine the extent of the illnesses. ODA is asking fair exhibitors to take precautions and is alerting attending veterinarians to closely monitor swine as they arrive on the fairgrounds for signs of influenza.

Fair attendance is safe; visitors should remember to always wash their hands after being in close-proximity to livestock and to keep food and drink out of animal exhibits. All fair animals, especially pigs,

are monitored for illness and signs of flu-like symptoms and are checked by veterinarians every day they are at the fair. This is to protect the health of both people visiting the fair and other animals in the barns.

Influenza viruses such as H3N2 and its variants are not unusual in swine and can be directly transmitted from swine to people and from people to swine in the same way that all viruses can be transmitted between people. When humans are in close proximity to live infected swine, such as in barns and livestock exhibits at fairs, movement of these viruses can occur back and forth between humans and animals. Influenza viruses cannot be transmitted by eating pork or pork products.

Individuals should always wash hands with soap and water before and after petting or touching any animal. Never eat, drink, or put anything in your mouth in animal areas. Older adults, pregnant women, young children, and people with weakened immune systems should be extra careful around animals.

Ohioans who have direct, routine contact with swine, such as working in swine barns or showing swine at fairs, and have experienced cough or influenza-like illness should contact their health care provider or local health department. Symptoms include cough, sore throat, fever, body aches, and possibly other symptoms, such as nausea, vomiting, or diarrhea.

More information is available from CDC at: <http://www.cdc.gov/flu/spotlights/safe-fair-going.htm>

The article is available online at <http://www.odh.ohio.gov/~media/ODH/ASSETS/Files/news/Flu-Like%20Illness%20Reported%20Following%20Butler%20Co%20Fair.ashx>.

National, Human (Hawaii Department of Health Press Release, July 31): Local and federal officials are investigating the cause of a confirmed variant flu case on Maui. The Hawaii State Department of Health (DOH) is working with federal and state partners, including the Centers for Disease Control and Prevention (CDC), the U.S. Department of Agriculture, and the Hawaii State Department of Agriculture (HDOA) to find the source of how a Maui resident adult contracted the virus, known as H3N2v virus.

The resident sought medical attention after experiencing symptoms consistent with the regular flu, including fever, cough, and body aches. Because the patient's primary care doctor is a participant in DOH's influenza-like illness sentinel network (ILINet), a respiratory specimen was sent to the State Laboratories Division for testing. Lab results for H3N2v virus were confirmed by CDC late last week. The resident has since fully recovered without need for hospitalization.

"Fortunately, we have a robust surveillance network and our State Laboratory detected this variant virus and conferred with federal partners," stated Health Director Loretta Fuddy. "Thanks to the excellent cooperation of Hawaii's healthcare providers, participation in our sentinel network exceeds CDC recommendations. In addition to our state laboratory's ability to identify unusual flu strains, sentinel physicians contribute to our ability to catch incidents such as this, which might otherwise fall below the radar."

The H3N2v virus identified in this case shares genetic similarities to variant flu viruses which have been identified in several other states in the past year. The H3N2v virus has rarely infected humans and has caused only limited human-to-human infection. The small number of previous infections has occurred mostly among children and those who work closely with pigs (e.g., livestock farmers). In this case, preliminary DOH findings suggest the latter exposure, although the investigation is ongoing in collaboration with HDOA.

"The virus seems to be behaving as previously observed in other cases, with illness similar to seasonal flu and with no sustained community transmission," noted State Epidemiologist Dr. Sarah Park. "Still, anyone who develops flu-like illness within a week after close contact with domestic pigs should see their healthcare provider."

Additionally, children, pregnant women, elderly, and those with compromised immune systems should be especially careful around pigs and practice good hand washing habits; those who work closely with pigs should take appropriate protective measures, including hand hygiene, personal protective equipment, and regular influenza vaccination.

"This particular virus is mainly transmitted through exposure to infected swine and is not transmitted through properly cooked pork," said HDOA state veterinarian Dr. James Foppoli. "HDOA veterinarians will be taking samples to investigate the status of swine herds potentially associated with this case. The total

number of human cases of swine derived influenza virus suggests that viral transmission from swine to humans is extremely uncommon. However, as in the past, we continue to emphasize that pig farmers and others having close contact with live swine practice good hygienic measures, such as frequent hand washing.”

Animal samples taken by HDOA will be tested by the DOH State Laboratory as part of their work as a member of the National Animal Health Laboratory Network.

Additional information about H3N2v virus can be found at <http://www.cdc.gov/flu/swineflu/influenza-variant-viruses-h3n2v.htm>. Information is also available from DOH Disease Outbreak Control Division at <http://hawaii.gov/health/DIB/index.html>, and from HDOA Animal Disease Control Branch at http://hawaii.gov/hdoa/ai/lcd/ai_lcd.

The press release is available online at <http://hawaii.gov/health/DIB/Documents/DOHRelease12040.pdf>.

National, Human (Indiana State Department of Health press release, August 2): The Indiana State Department of Health has identified a case of variant influenza A in Jackson County, bringing the total to five cases statewide. All cases have been linked to swine. Laboratory testing is pending on potential additional cases.

The State Health Department has detected increased influenza activity in different areas of the state. Flu symptoms usually include fever and respiratory symptoms, such as cough, sore throat, and runny nose, and possibly other symptoms, such as body aches, nausea or vomiting, or diarrhea. Symptoms usually last about 2 to 5 days.

Variant Influenza A virus can be directly transmitted from swine to people and from people to swine. Human infections are most likely to occur when people are in close proximity to live infected pigs, such as working with them in barns and livestock exhibits at fairs. Influenza viruses are not transmitted by eating pork and pork products.

While influenza is not an uncommon diagnosis in pigs, the State Board of Animal Health encourages swine owners to contact a veterinarian if their animals show signs consistent with flu, including coughing, respiratory illness, off-feed and fever. Most county fairs have a private veterinary practitioner on call for on-site assistance.

Hoosiers are encouraged to wash hands with soap and water before and after petting or touching any animal. Never eat, drink, or put anything in your mouth when visiting animal areas. Older adults, pregnant women, young children, and people with weakened immune systems should be extra careful around animals.

The best way to prevent spread of influenza is to practice good hygiene. Wash your hands frequently. Cough or sneeze into your sleeve or elbow. If possible, avoid contact with those who are ill. Stay home if you develop influenza symptoms and contact your health care provider.

Additional information regarding influenza can be found at the Indiana State Department of Health website at www.in.gov/isdh/25462.htm.

The press release is available online at http://www.in.gov/activecalendar/EventList.aspx?view=EventDetails&eventidn=57984&information_id=117013&type=&syndicate=syndicate.

National, Seals (CNN [edited], July 31): A new strain of avian flu that jumped from birds to mammals is responsible for the death of more than 160 seals off the New England coast last year, scientists announced Tuesday. The virus could theoretically pose a threat to human health, they said.

Harbor seals -- most of them babies less than 6 months old -- began appearing with severe pneumonia and skin lesions in September of last year, the researchers said. Over the next few months, at least 162 dead seals were recovered along the coast from Maine to Massachusetts, they said. Testing pointed at a new strain of the H3N8 flu virus being called seal H3N8.

"When initial tests revealed an avian influenza virus, we asked the obvious question: How did this virus jump from birds to seals?" lead researcher Simon Anthony of Columbia University said.

The virus developed the ability to attack mammalian respiratory tracts, scientists learned. It may also have developed enhanced virulence and transmission in mammals, they said, but they need to do more tests to be sure.

Avian flu has spread to humans before, most notably H1N1 and H5N1, so the new strain could pose a threat to public health, scientists warned.

"HIV/AIDS, SARS, West Nile, Nipah and influenza are all examples of emerging infectious diseases that originated in animals," said W. Ian Lipkin, director of the Center for Infection and Immunity at Columbia University.

"Any outbreak of disease in domestic animals or wildlife, while an immediate threat to wildlife conservation, must also be considered potentially hazardous to humans," he said.

The research is published in the journal mBio. It was carried out by scientists from the Center for Infection & Immunity at Columbia University's Mailman School of Public Health, the National Oceanic and Atmospheric Administration, New England Aquarium, the USGS National Wildlife Health Center, SeaWorld and EcoHealth Alliance.

View the article at http://www.cnn.com/2012/07/31/health/baby-seals-avian-flu/index.html?hpt=hp_c2.

Michigan Wild Bird Surveillance (USDA, as of August 2): For the 2012 season (April 1, 2012-March 31, 2013), highly pathogenic avian influenza H5N1 has not been recovered from the 7 samples tested nationwide. For more information, visit <http://www.nwhc.usgs.gov/ai/>. To learn about avian influenza surveillance in wild birds or to report dead waterfowl, go to the 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 – As of July 6, 2012. http://www.who.int/influenza/human_animal_interface/EN_GIP_20120706_CumulativeNumberH5N1cases.pdf. Downloaded 7/9/2012. Cumulative lab-confirmed cases reported to WHO. Total cases include deaths.

| Country | 2003-2005 | | 2006 | | 2007 | | 2008 | | 2009 | | 2010 | | 2011 | | 2012 | | Total | |
|------------|-----------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|
| | Cases | Deaths | Cases | Deaths | Cases | Deaths | Cases | Deaths | Cases | Deaths | Cases | Deaths | Cases | Deaths | Cases | Deaths | Cases | Deaths |
| Azerbaijan | 0 | 0 | 8 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 5 |
| Bangladesh | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 3 | 0 | 6 | 0 |
| Cambodia | 4 | 4 | 2 | 2 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 8 | 8 | 3 | 3 | 21 | 19 |
| China | 9 | 6 | 13 | 8 | 5 | 3 | 4 | 4 | 7 | 4 | 2 | 1 | 1 | 1 | 2 | 1 | 43 | 28 |
| Djibouti | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Egypt | 0 | 0 | 18 | 10 | 25 | 9 | 8 | 4 | 39 | 4 | 29 | 13 | 39 | 15 | 10 | 5 | 168 | 60 |
| Indonesia | 20 | 13 | 55 | 45 | 42 | 37 | 24 | 20 | 21 | 19 | 9 | 7 | 12 | 10 | 7 | 7 | 190 | 158 |
| Iraq | 0 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 2 |
| Lao PDR | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 |
| Myanmar | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Nigeria | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Pakistan | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 |
| Thailand | 22 | 14 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 17 |
| Turkey | 0 | 0 | 12 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 4 |
| Vietnam | 93 | 42 | 0 | 0 | 8 | 5 | 6 | 5 | 5 | 5 | 7 | 2 | 0 | 0 | 4 | 2 | 123 | 61 |
| Total | 148 | 79 | 115 | 79 | 88 | 59 | 44 | 33 | 73 | 32 | 48 | 24 | 62 | 34 | 29 | 18 | 607 | 358 |