



# MI FluFocus

## Influenza Surveillance and Avian Influenza Update

Bureau of Epidemiology  
Bureau of Laboratories

Michigan Department  
of Community Health



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### New updates in this issue:

- **International:** WHO reports that active transmission of pandemic influenza virus persists in parts of the tropics, particularly in the Caribbean, West Africa, and South and Southeast Asia.

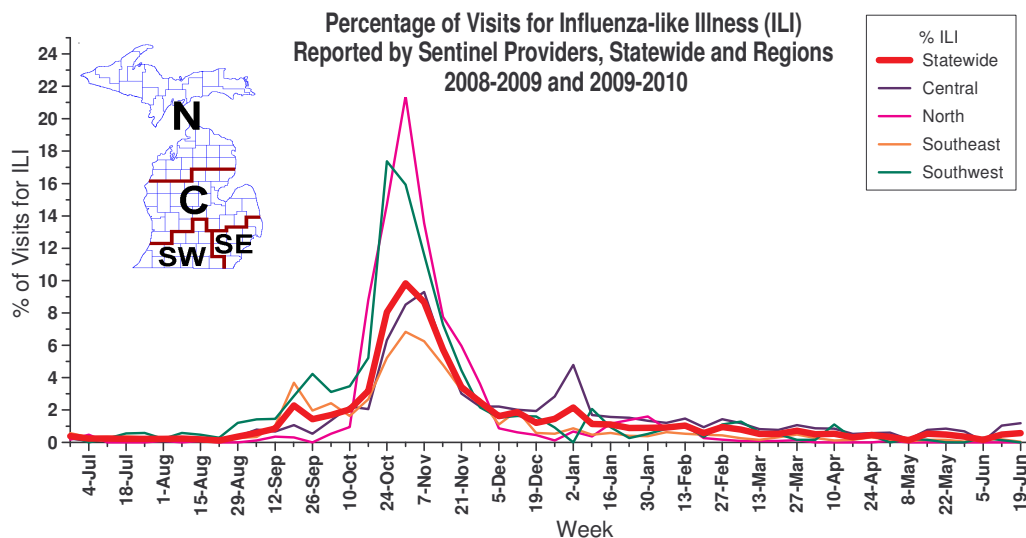
### Influenza Surveillance Reports

**Michigan Disease Surveillance System:** Data for the week ending June 19th showed that aggregate influenza cases continued decreasing to levels normally seen after schools dismiss for summer vacation. Individual reports remained near the previous week's reported levels of little to no activity. Aggregate influenza cases are similar to levels seen during the same reporting period in 2009, while individual influenza reports are drastically lower. The decrease in individual reports is attributable to the rapid increase of cases in 2009 due to the H1N1 pandemic; current levels are consistent with expected levels based on surveillance data from previous non-pandemic influenza seasons.

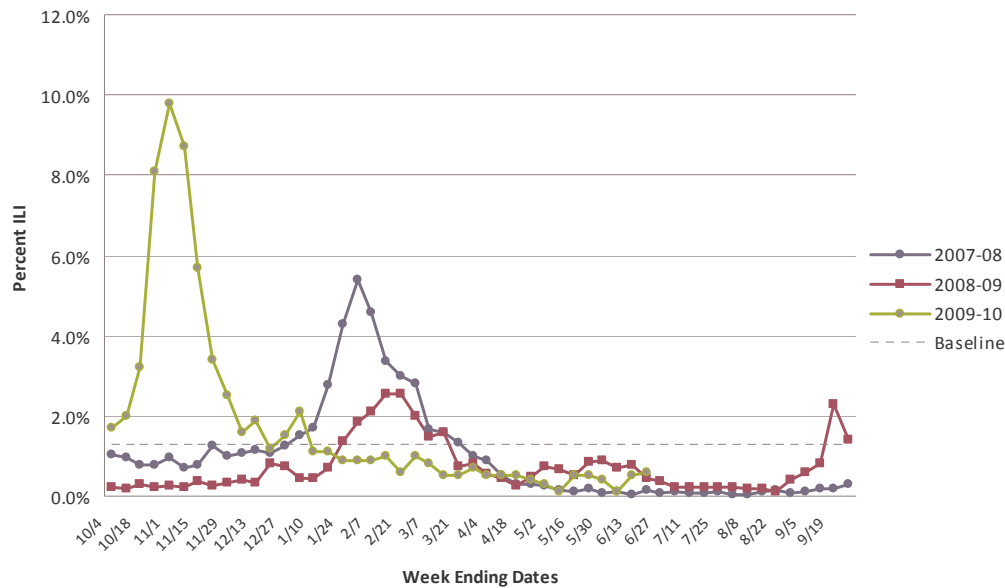
**Emergency Department Surveillance:** Emergency department visits from constitutional complaints were comparable to the previous week's levels, while respiratory complaints decreased slightly. Both constitutional and respiratory complaints are at similar levels compared to the same reporting period last year. In the past week, there were seven constitutional alerts in the C(4) and SW(3) Influenza Surveillance Regions. There were three respiratory alerts in the C(3) Influenza Surveillance Region.

**Over-the-Counter Product Surveillance:** Over the past week, OTC product sales of thermometers and cough/cold aides remained similar to last week's levels, while children's electrolytes decreased slightly and chest rubs fluctuated throughout the week. All indicators are consistent with levels seen at this time last year, except for chest rubs, which are slightly increased.

**Sentinel Provider Surveillance (as of June 24):** During the week ending June 19, 2010, the proportion of visits due to influenza-like illness (ILI) slightly increased to 0.6% overall. Thirty-nine patient visits due to ILI were reported out of 6,817 office visits. Twenty-three sentinel sites provided data for this report, limiting the validity of the slight increase. Activity increased in one surveillance region: Central (1.2%) and no ILI activity was reported in the remaining three regions: Southeast, Southwest and North. Please note that these rates may change as additional reports are received.



**Percent of Visits for Influenza Like Illnes (ILI) Reported by the US Outpatient Influenza-like Illness Surveillance Network (ILINet) - Michigan, 2007-2010**



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.

**Laboratory Surveillance (as of June 26):** During June 20-26, no influenza isolates were identified at the MDCH Bureau of Laboratories. For the 2009-2010 season (starting on October 4, 2009), MDCH BOL has identified 610 influenza isolates:

- 2009 Influenza A (H1N1): 609
- Influenza B: 1

Six sentinel laboratories reported for the week ending June 26, 2010. All laboratories (SE, SW, C, N) reported no influenza A or B positive test results, with very few specimens being tested. One RSV positive was noted in the N Region.

**Michigan Influenza Antigenic Characterization (as of July 1):** One 2009 H1N1 influenza A virus from Michigan has undergone further characterization at the CDC. This virus was characterized as A/California/07/2009 (H1N1)-like, which is the recommended strain for the H1 component of the 2010-11 Northern Hemisphere vaccine.

**Michigan Influenza Antiviral Resistance Data (as of July 1):** Results are currently not available for antiviral resistance at CDC for the 2009-2010 season.

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. The guidance is available at <http://www.cdc.gov/H1N1flu/recommendations.htm>.

**Influenza-Associated Pediatric Mortality (as of July 1):** Five 2009 H1N1 influenza-associated pediatric mortalities (SE(3), SW, N) have been reported to MDCH for the 2009-2010 influenza 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](http://www.michigan.gov/documents/mdch/ME_pediatric_influenza_guidance_v2_214270_7.pdf).

**Influenza Congregate Settings Outbreaks (as of July 1):** Seven congregate setting outbreaks with confirmatory novel influenza A H1N1 testing (2SE, 3 SW, 1C, 1N), and three outbreaks associated with positive influenza A tests (2C, 1N) have been reported to MDCH for the 2009-2010 influenza season. These are 8 school facilities and 2 long term care facilities. Human metapneumovirus was confirmed in one outbreak in a long term care facility (SW) in February. Adenovirus was confirmed from one outbreak in an elementary school (SW) in May.

During fall 2009, 567 influenza-related school and/or district closures in Michigan (Public Health Preparedness Region 1 - 55, Region 2N - 4, Region 2S - 8, Region 3 - 54, Region 5 - 153, Region 6 - 100, Region 7 - 109, Region 8 - 84) were reported.

**National:** To access previous Center for Disease Control and Prevention weekly surveillance reports, visit <http://www.cdc.gov/flu/weekly/fluactivity.htm>.

**International (WHO Pandemic update 106 [edited], June 25):** Worldwide, overall pandemic and seasonal influenza activity remains low. Active transmission of pandemic influenza virus persists in parts of the tropics, particularly in the Caribbean, West Africa, and South and Southeast Asia. Pandemic and seasonal influenza viruses have been detected only sporadically during the early part of winter in the temperate regions of the southern hemisphere. Global circulation of seasonal influenza virus type B viruses has declined substantially and persists at low levels in parts of East Asia, Central Africa, and Central America. During the past month, seasonal influenza H3N2 viruses have been detected at low levels across parts of East Africa and South America.

In most countries of the temperate zone of the southern hemisphere (Chile, Argentina, South Africa, Australia, and New Zealand) pandemic and seasonal influenza viruses have been detected only sporadically during the first two weeks of June 2010 and overall levels of respiratory disease in the population remain low. In Chile, during the second week of June, approximately 1% samples tested positive for influenza (the majority were pandemic influenza virus). In Argentina, small numbers of influenza type B viruses were detected during early June 2010. In both Chile and Argentina, respiratory syncytial virus (RSV) continued to be the predominant circulating respiratory virus. In South Africa, very small numbers of seasonal H3N2 and type B viruses were detected since the beginning of June 2010. In both Australia and New Zealand, levels of ILI are below recent historical seasonal levels and there have been only sporadic detections of seasonal or pandemic influenza virus during the first half of June 2010.

In Asia, the most active areas pandemic influenza virus transmission currently are in parts of southern India, Bangladesh, Singapore, and Malaysia. In India, there have been recent reports of increasing pandemic influenza activity in the southern state of Kerala, including reports of small numbers of severe and fatal cases, particularly among pregnant women; the extent of illness in the community is currently being assessed. In Bangladesh, pandemic and seasonal influenza type B viruses continued to co-circulate at low levels during early June 2010. In Thailand, limited data suggests that there continues to be low levels of pandemic and seasonal influenza virus co-circulating in parts of the country. In Singapore, during the third week of June 2010, levels of ARI declined below warning levels and the proportion of patients with ILI testing positive for pandemic influenza virus fell from 28% to 19%. In Malaysia, limited data suggests that overall pandemic influenza activity declined throughout June 2010 as pandemic virus continued to circulate at low levels. Throughout East Asia, overall pandemic and seasonal activity remained very low to sporadic. In China and Japan, levels of ILI remained at or below baseline levels for the summer months. Low and declining levels of seasonal influenza type B viruses continued to circulate across China, Hong Kong SAR (China), and Chinese Taipei.

In the tropical regions of the Americas, overall pandemic and seasonal influenza activity remained very low, except in Cuba and Colombia, where low levels of pandemic influenza virus continue to circulate (approximately 8% of respiratory samples tested positive for pandemic influenza in both countries during the early part of June 2010). In Cuba, pandemic influenza virus transmission remains active but has declined substantially since peaking during mid-April to mid-May 2010; no new fatal cases have been reported over the past four reporting weeks. In Colombia, persistent but low level circulation of pandemic influenza virus has increased slightly since late May 2010; however, the overall level of respiratory diseases in the population was reported to be low to moderate during mid June 2010. In several countries of the region, there has been recent circulation of seasonal influenza viruses including type A (Venezuela during May 2010) and B (Bolivia during March and May 2010; El Salvador during late May and early June 2010). Variable ongoing co-circulation of other respiratory viruses, including RSV, continues to be reported across the region.

In sub-Saharan Africa, pandemic and seasonal influenza activity has been limited to several countries. Ghana, in West Africa, continued to have active circulation of pandemic influenza virus long after overall activity peaked during early April 2010; the proportion of respiratory samples testing positive for pandemic influenza virus increased from 16% to 23% during the first two weeks of June 2010. Seasonal influenza type B viruses continue to circulate in parts of central and southern Africa, most notably in Cameroon. As reported in previous updates, small numbers of seasonal H3N2 viruses continue to be detected across

Africa, particularly in eastern Africa; the most recent detections have been reported in Ghana, Kenya, and South Africa during the second week of June 2010. The persistence of H3N2 in this area over time very likely represents sustained community transmission of the virus.

Overall, in the temperate regions of the northern hemisphere (North America and Europe), pandemic and seasonal influenza viruses have been detected sporadically or at very low levels during the past month.

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Weekly reporting of influenza activity to the CDC has concluded for the 2009-2010 season.

For those interested in additional influenza vaccination and education information, the MDCH *FluBytes* is available at [http://www.michigan.gov/mdch/0,1607,7-132-2940\\_2955\\_22779\\_40563-125027--,00.html](http://www.michigan.gov/mdch/0,1607,7-132-2940_2955_22779_40563-125027--,00.html).

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### ***Novel Influenza Activity and Other News***

**WHO Pandemic Phase:** Phase 6 – characterized by increased and sustained transmission in the general population. Human to human transmission of an animal or human-animal influenza reassortant virus has caused sustained community level outbreaks in at least two WHO regions.

**International, Wild Birds (OIE [edited], June 25):** Highly pathogenic avian influenza H5N1, Russia  
Start date: 05 Jun 2010; Date of 1st confirmation of the event: 11 Jun 2010  
Report date: 25 Jun 2010; Date submitted to OIE: 25 Jun 2010  
Outbreak 1: Ubsu-Nur, Ovursky, Respublika Tyva  
Date of start of the outbreak: 05 Jun 2010  
Species: Wild species; Cases: 367; Deaths: 367; Destroyed: 0; Slaughtered: 0  
Affected Population: Wild birds found dead on a lake  
Source of the outbreak(s) or origin of infection: Unknown or inconclusive  
Control Measures applied: Screening; No vaccination; No treatment of affected animals

**International, Research (CIDRAP News, June 28):** Researchers have found that preening activities in birds can contribute to avian influenza transmission, which could change the way animal health experts conduct surveillance and fight the virus.

The findings, published in *Public Library of Science (PLoS) One*, suggest preen oil glands secretions, which waterproof the feather of aquatic birds, support a mechanism that concentrates avian flu viruses from water onto birds' bodies. The investigators are from three Italian veterinary research centers and St Jude Children's Research Hospital in Memphis, Tenn.

In looking for a common denominator among waterfowl that could attract avian influenza viruses from water, the group hypothesized that preen oil might be a natural capture system that progressively concentrates the viruses on the birds' bodies.

To test the possibility, they took feather and cloacal swabs of wild mallards in Italy's Tuscany region between Dec 2006 and Aug 2007. They then performed lab experiments to test the interaction between waterborne avian influenza viruses and preen oil in both freshwater and saltwater.

They found that feather swabs were 2.5 time more likely to show evidence of avian flu viruses than cloacal swabs (27% versus 11%).

In the second part of the experiment, they found no avian flu viruses in duck uropygial glands, the organ that produces the preen oil. The group concluded that the absence suggests the flu viruses originated externally, which they say supports their suspicion that preened feathers are an ecologic link between waterfowl and the environmental persistence of avian flu viruses.

Because both infected and noninfected ducks can carry the virus on their feathers, routine surveillance—which typically involves cloacal and tracheal sampling for the virus—may produce false-negatives, meaning new detection methods may be needed to detect avian influenza on the birds' bodies.

They said H5N1 avian influenza infections have been reported in people who have defeathered dead swans and that the feather-flu connection might partially explain why women, because they are more often involved in defeathering activities, have a higher incidence of H5N1 infection.

The group wrote that more studies are needed to explore how the proposed preening-mediated infection mechanism is affected by other variables such as long-distance movements and long-term infectivity of avian flu viruses.

**Michigan Wild Bird Surveillance (USDA, as of July 1):** For the 2010 season (April 1, 2010-March 31, 2011), highly pathogenic avian influenza H5N1 has not been recovered from 2,676 samples tested nationwide, including 4 Michigan samples (1 live bird, 2 hunter-killed birds, 1 morbidity/mortality). For more information, visit the National HPAI Early Detection Data System at <http://wildlifedisease.nh.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\\_Al-Asia.htm](http://www.oie.int/download/AVIAN%20INFLUENZA/A_Al-Asia.htm).

**For questions or to be added to the distribution list, please contact Susan Peters at [PetersS1@michigan.gov](mailto:PetersS1@michigan.gov)**

**Contributors**

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**Table 1. H5N1 Influenza in Humans - Cases up to May 6, 2010.** [http://www.who.int/csr/disease/avian\\_influenza/country/cases\\_table\\_2010\\_06\\_08/en/index.html](http://www.who.int/csr/disease/avian_influenza/country/cases_table_2010_06_08/en/index.html). Downloaded 6/14/2010. Cumulative number of lab-confirmed cases reported to WHO. Total cases includes deaths.

Country	2003		2004		2005		2006		2007		2008		2009		2010		Total	
	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	8	5
Bangladesh	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0
Cambodia	0	0	0	0	4	4	2	2	1	1	1	0	1	0	1	1	10	8
China	1	1	0	0	8	5	13	8	5	3	4	4	7	4	1	1	39	26
Djibouti	0	0	0	0	0	0	1	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	19	7	109	34
Indonesia	0	0	0	0	20	13	55	45	42	37	24	20	21	19	3	2	165	136
Iraq	0	0	0	0	0	0	3	2	0	0	0	0	0	0	0	0	3	2
Lao People's Democratic Republic	0	0	0	0	0	0	0	0	2	2	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	1	0
Nigeria	0	0	0	0	0	0	0	0	1	1	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	3	1
Thailand	0	0	17	12	5	2	3	3	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	12	4
Viet Nam	3	3	29	20	61	19	0	0	8	5	6	5	5	5	7	2	119	59
Total	4	4	46	32	98	43	115	79	88	59	44	33	73	32	31	13	499	295