



MI Flu Focus

Influenza Surveillance Updates
Bureaus of Epidemiology and Laboratories

Michigan Department
of Community Health



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Current Influenza Activity Levels:

- **Michigan:** Sporadic activity
- **National:** During October 28-November 3, activity increased in some areas, but overall was similar to activity last week in the U.S.

Updates of Interest

- **Laboratory Testing:** Please see the notice on page 2 regarding concerns with the Quidel Sofia Influenza A&B test

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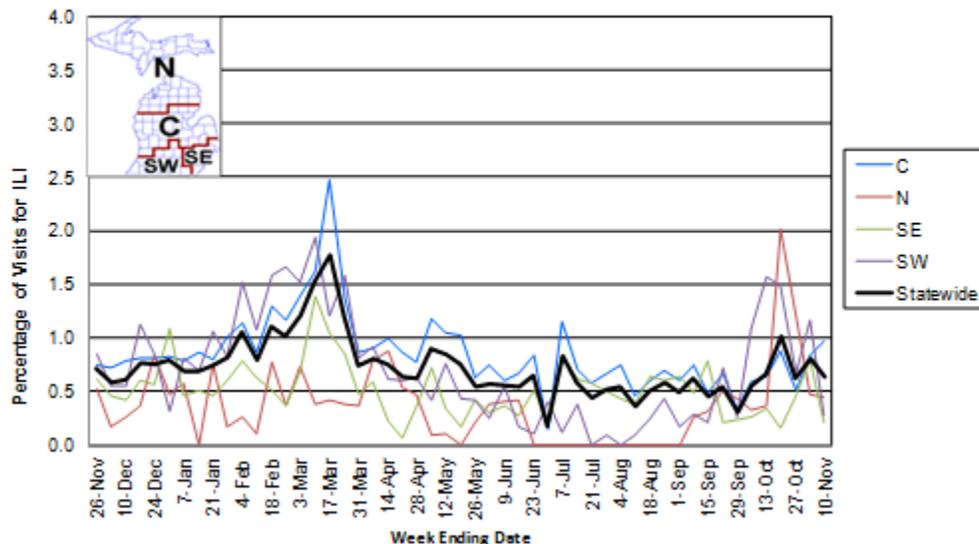
Influenza Surveillance Reports

Michigan Disease Surveillance System (as of November 15): MDSS data for the week ending November 10th indicated that compared to levels from the previous week, aggregate reports remained steady, while individual reports increased slightly but remain low. Aggregate reports are slightly lower than levels seen during the same time period last year, while individual reports are marginally increased.

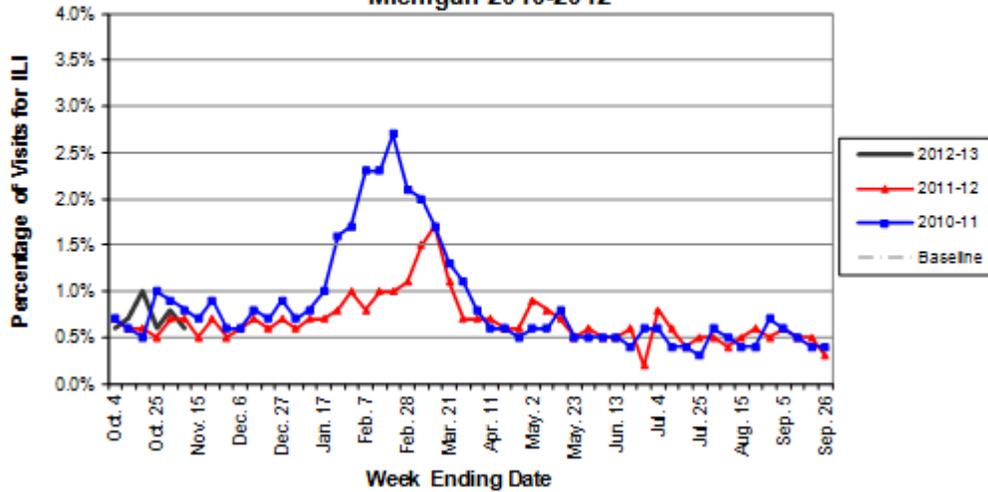
Emergency Department Surveillance (as of November 15): Compared to levels from the week prior, emergency department visits from both constitutional and respiratory complaints remained steady. Both constitutional and respiratory complaints are slightly lower than levels reported during the same time period last year. In the past week, there were five constitutional alerts in the SW(3) and C(2) Influenza Surveillance Regions and seven respiratory alerts in the SE(1), SW(1), C(3) and N(2) Regions.

Sentinel Provider Surveillance (as of November 15): During the week ending November 10, 2012, the proportion of visits due to influenza-like illness (ILI) slightly decreased to 0.6% overall; this is below the regional baseline of (1.5%). A total of 74 patient visits due to ILI were reported out of 11,518 office visits. Data were provided by thirty sentinel sites from the following regions: C (13), N (6), SE (7) and SW (4). ILI activity increased in one surveillance region: Central (1.0%); and decreased in the remaining three regions: North (0.4%), Southeast (0.2%), and Southwest (0.3%). 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
2011-2012 and 2012-13 Flu Seasons



Percentage of Visits for Influenza-like Illness (ILI) Reported by the US Outpatient Influenza-like Illness Surveillance Network (ILINet): Michigan 2010-2012



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 November 10): The 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, 2012, in the Clinton, Eaton, Genesee, and Ingham counties. As of November 10th there has been 1 influenza hospitalization (1 adult) within the catchment area.

The MDCH Influenza Sentinel Hospital Network monitors influenza hospitalizations reported voluntarily by hospitals statewide. 7 hospitals (SE, SW, C, N) reported for the week ending November 10, 2012. Results are listed in the table below.

Age Group	Hospitalizations Reported During Current Week	Total Hospitalizations 2012-13 Season
0-4 years	0	0
5-17 years	0	0
18-49 years	0	0
50-64 years	0	0
≥65 years	0	0
Total	0	0

Laboratory Surveillance (as of November 10): During October 28-November 10, no positive influenza results were reported by MDCH BOL. For the 2012-13 season (starting September 30, 2012), MDCH has identified 13 influenza results:

- Influenza A(H3): 3 (3SE)
- Influenza A(H1N1)pdm09: 1 (1SE)
- Influenza B: 9 (3SE, 1SW, 5C)
- Parainfluenza: 3 (1SW, 2N)

14 sentinel labs (SE, SW, C, N) reported for the week ending November 10, 2012. One lab (SW) reported sporadic influenza A activity, and one lab (SE) reported sporadic influenza B activity. 2 labs (SE, C) reported sporadic parainfluenza activity. 5 labs (SE, C) reported sporadic RSV activity. No labs reported HMPV activity. Most testing volumes are at low or moderate levels.

Laboratory Notification (Association of Public Health Laboratories [edited], November 13): This message is being shared on behalf of the Association of Public Health Laboratories. CDC is aware of 5 laboratories in 3 different states that have experienced false influenza B positive results with the Quidel Sofia Influenza A&B test. Quidel is aware of the problem and is working to identify and solve the issue.

If you or your submitters believe you may be experiencing a problem, consider obtaining a second specimen from patients with positive Influenza B results for confirmation via PCR testing. In addition, since influenza activity is currently at sporadic levels in Michigan, confirmatory testing on rapid test-positive influenza specimens is strongly encouraged. PCR testing is available at the Michigan Department of Community Health Bureau of Laboratories; call (517) 335-8099 for more information.

If you identify and confirm false positive results with this test or with any other test, please contact the company with the lot number(s) and expiration dates of the product.

If you choose, you may report test malfunctions to FDA by completing [FDA Form 3500](#). This form is used for reports submitted by persons who are not required to report events by the MDR regulation. If the reporting falls under mandatory reporting by a user facility (events in which there is a reasonable suggestion that a medical device has or may have caused or contributed to a death or serious injury) you should use FDA Form 3500A. The FDA Form 3500A, instructions for completing specific items on the form, and the coding manual can be found [here](#).

Michigan Influenza Antigenic Characterization (as of November 15): For the 2012-13 season, 8 Michigan influenza B specimens have been characterized at MDCH BOL. 7 specimens are B/Wisconsin/01/2010-like, matching the B component of the 2012-13 influenza vaccine. 1 influenza B specimen was characterized as B/Brisbane/60/2008-like, which is not included in the 2012-13 vaccine.

Michigan Influenza Antiviral Resistance Data (as of November 15): For the 2012-13 season, no influenza isolates have been tested for antiviral 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 November 15): No pediatric influenza-associated influenza mortalities have been reported to MDCH 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 November 15): No new respiratory outbreaks were reported to MDCH during the past week. 1 respiratory outbreak (1C) has been reported to MDCH during the 2012-13 season; testing results are listed below.

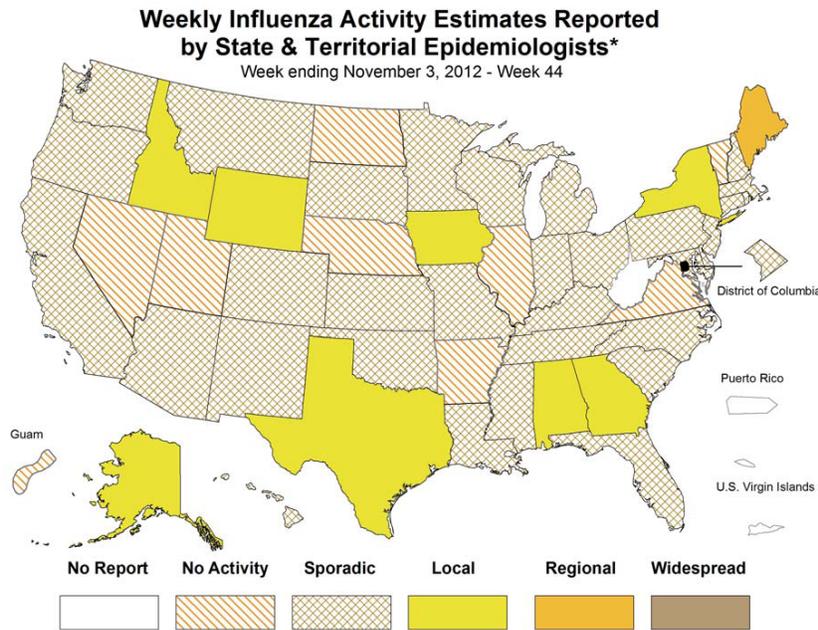
- Influenza B: 1 (1C)

National (CDC [edited], November 2): During week 43 (October 21-27, 2012), influenza activity remained low in the United States. Of 3,036 specimens tested and reported by U.S. WHO and NREVSS collaborating laboratories during week 43, 188 (6.2%) were positive for influenza. The proportion of deaths attributed to pneumonia and influenza (P&I) was above the epidemic threshold. No influenza-associated pediatric deaths were reported. The proportion of outpatient visits for influenza-like illness (ILI) was 1.1%, which is below the national baseline of 2.2%. All 10 regions reported ILI below region-specific baseline levels. One state experienced low ILI activity; 49 states and New York City experienced minimal ILI activity, and the District of Columbia had insufficient data. The geographic spread of influenza in 5 states was reported as local; the District of Columbia and 33 states reported sporadic activity; Guam and 12 states reported no influenza activity, and Puerto Rico and the U.S. Virgin Islands did not report.

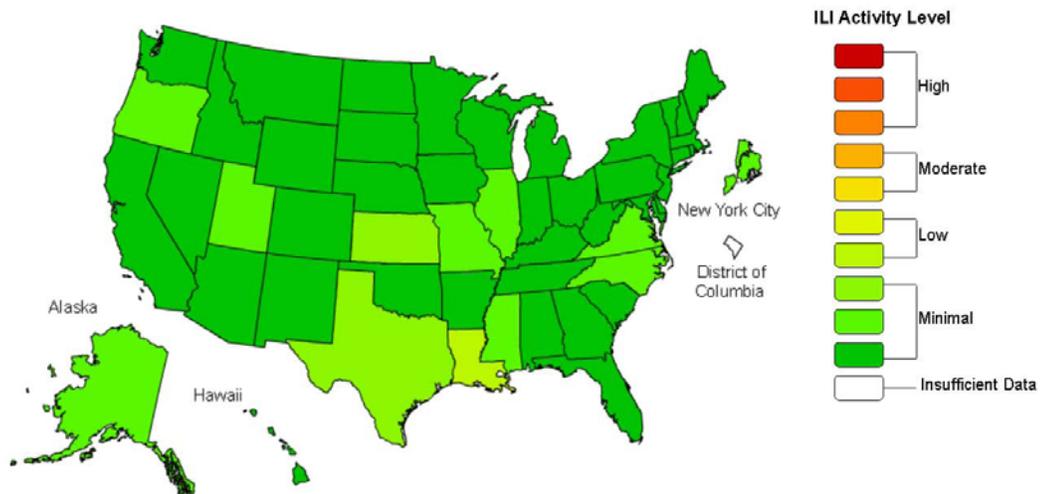
National (CDC [edited], November 9): During week 44 (October 28-November 3, 2012), influenza activity increased in some areas, but overall was similar to activity last week in the United States. Of 3,277 specimens tested and reported by U.S. WHO and NREVSS collaborating laboratories during week 44, 227 (6.9%) were positive for influenza. The proportion of deaths attributed to pneumonia and influenza (P&I) was slightly above the epidemic threshold. No influenza-associated pediatric deaths were reported. The proportion of outpatient visits for influenza-like illness (ILI) was 1.3%, which is below the national baseline of 2.2%. All 10 regions reported ILI below region-specific baseline levels. One state experienced low ILI activity; New York City and 49 states experienced minimal ILI activity, and the District of Columbia had insufficient data. The geographic spread of influenza in 1 state was reported as regional; 8 states reported local activity; the District of Columbia and 32 states reported sporadic activity; Guam and 8 states reported no activity, and Puerto Rico, the U.S. Virgin Islands, and 1 state did not report.

CDC has antigenically characterized 45 influenza viruses [1 2009 H1N1 virus, 9 influenza A (H3N2) viruses, and 35 influenza B virus collected by U.S. laboratories since October 1, 2012]. The 2009 H1N1 virus tested was characterized as A/California/7/2009-like, the influenza A (H1N1) component of the 2012-13 influenza vaccine for the Northern Hemisphere. All 9 influenza viruses tested were characterized as A/Victoria/361/2011-like, the influenza A (H3N2) component of the 2012-13 Northern Hemisphere

influenza vaccine. Twenty-four (68.6%) of the 35 influenza B viruses tested were characterized as B/Wisconsin/1/2010-like, the influenza B component of the 2012-13 Northern Hemisphere influenza vaccine. Eleven (31.4%) of 35 influenza B viruses tested belong to the B/Victoria lineage of viruses



**Influenza-Like Illness (ILI) Activity Level Indicator Determined by Data Reported to ILINet
2012-13 Influenza Season Week 44 ending Nov 03, 2012**



This map uses the proportion of outpatient visits to healthcare providers for influenza-like illness to measure the ILI activity level within a state. Therefore, outbreaks occurring in a single city could cause the state to display high activity levels. Data collected in ILINet may disproportionately represent certain populations within a state, and therefore, may not accurately depict the full picture of influenza activity for the whole state. Data displayed on this map are based on data collected in ILINet, whereas the State and Territorial flu activity map are based on reports from state and territorial epidemiologists.

The complete FluView report is available online at <http://www.cdc.gov/flu/weekly/fluactivity.htm>.

International (WHO [edited], November 9): Many countries of the Northern Hemisphere temperate region reported increasing detections of influenza viruses, particularly in North America and Western Europe, however none have crossed their seasonal threshold for ILI/ARI consultation rates. Several countries in the tropical areas experienced active transmission of influenza virus in recent weeks. In the Americas, Nicaragua and Costa Rica reported mainly influenza B virus detections. In Asia, India, Sri Lanka, Nepal, and Cambodia are all reporting a mixture of all three virus subtypes. In Sub-Saharan Africa, Cameroon and Ethiopia have reported an increase in influenza virus detections. Influenza activity in the temperate countries of the Southern Hemisphere is at inter-seasonal levels. A review of the 2012 southern hemisphere influenza season was published in the Weekly Epidemiological Record (WER) 2 November 2012, vol. 87, 44 (pp. 421–436)

MDCH reported SPORADIC FLU ACTIVITY to CDC for the weeks ending Nov. 3 and 10, 2012.

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, Humans (CIDRAP, November 1): A serologic survey by the US Centers for Disease Control and Prevention (CDC) suggests that about 20% of the US population, including more than half of school children, were infected with the pandemic H1N1 (pH1N1) flu virus in 2009, says a report in *PLoS One*. The researchers used a baseline sample of 1,142 serum specimens from the 2007–08 National Health and Nutrition Examination Survey (NHANES). For a post-pandemic survey, they used 2,759 serum specimens submitted for routine screening to clinical diagnostic labs in New York City and nine states in December 2009 and January 2010. They defined seropositivity as an antibody titer of 40 or higher on hemagglutination inhibition assay. To adjust for the effects of pH1N1 vaccination, the team used CDC surveys of vaccination coverage in the affected states. The researchers found an overall rate of seropositivity to pH1N1 of 36.9%. After adjusting for the effects of pH1N1 vaccination, baseline cross-reactivity to the virus, and other factors, the researchers estimated the overall incidence of pH1N1 infection by the end of 2009 at 20.2%. Estimates varied greatly by age, with an incidence of 53.3% in children aged 5 to 17 years and a much lower level in elderly people. Applied nationwide, the findings suggests that 61.9 million people may have been infected.

The study is available online at <http://www.plosone.org/article/info:doi/10.1371/journal.pone.0048187>.

National, Research (Journal of Infectious Diseases abstract, August 2): C. Hansen, et al. A Large, Population-Based Study of 2009 Pandemic Influenza A Virus Subtype H1N1 Infection Diagnosis During Pregnancy and Outcomes for Mothers and Neonates. *J Infect Dis.* (2012) 206(8): 1260-1268. first published online August 2, 2012

Background: Pregnant women were at increased risk for serious outcomes of 2009 pandemic influenza A virus subtype H1N1 (influenza A[H1N1]pdm09) infection, but little is known about the overall impact of the pandemic on neonatal and maternal outcomes.

Methods: We identified live births that occurred from 1 July 2008 through 31 May 2010 in 5 Kaiser Permanente regions. Pregnant women were considered to have influenza if they had a positive result of a laboratory test for influenza virus or if they received a diagnosis of influenza during a period in which seasonal influenza virus or A(H1N1)pdm09 was the predominant circulating virus.

Results: There were 111 158 births from 109 015 pregnancies involving 107 889 mothers; 368 pregnant women (0.3%) received a diagnosis of influenza due to seasonal virus, and 959 (0.9%) received a diagnosis of influenza due to A(H1N1)pdm09; 107 688 did not receive an influenza diagnosis. Pregnant women with influenza due to A(H1N1)pdm09 were more likely than women with seasonal influenza infection to be hospitalized within 30 days of the diagnosis (27% vs 12%; odds ratio [OR], 2.84 [95% confidence interval {CI}, 2.01–4.02]). Pregnant women with A(H1N1)pdm09 who started antiviral treatment ≥ 2 days after the diagnosis were significantly more likely to be hospitalized than those who started antiviral treatment < 2 days after diagnosis (OR, 3.43 [95% CI, 1.55–7.56]). Mothers with seasonal influenza virus infection had an increased risk for having a small-for-gestational-age infant (OR, 1.59 [95% CI, 1.15–2.20]).

Conclusions: In this large, geographically diverse population, A(H1N1)pdm09 infection increased the risk for hospitalization during pregnancy. Late initiation of antiviral treatment was also associated with an increased risk for hospitalization.

The abstract is available online at <http://jid.oxfordjournals.org/content/206/8/1260.abstract>.

International, Research (Pediatrics abstract, November 12): Autism After Infection, Febrile Episodes, and Antibiotic Use During Pregnancy: An Exploratory Study. H. Atladóttir, T. Henriksen, D. Schendel, and E. Parner. *Pediatrics* peds.2012-1107; published ahead of print November 12, 2012.

OBJECTIVES: Results of animal studies suggest that maternal immune activation during pregnancy causes deficiencies in fetal neurodevelopment. Infectious disease is the most common path to maternal immune activation during pregnancy. The goal of this study was to determine the occurrence of common infections, febrile episodes, and use of antibiotics reported by the mother during pregnancy and the risk for autism spectrum disorder (ASD) and infantile autism in the offspring.

METHODS: We used a population-based cohort consisting of 96 736 children aged 8 to 14 years and born from 1997 to 2003 in Denmark. Information on infection, febrile episodes, and use of antibiotics was self-reported through telephone interviews during pregnancy and early postpartum. Diagnoses of ASD and infantile autism were retrieved from the Danish Psychiatric Central Register; 976 children (1%) from the cohort were diagnosed with ASD.

RESULTS: Overall, we found little evidence that various types of mild common infectious diseases or febrile episodes during pregnancy were associated with ASD/infantile autism. However, our data suggest that maternal influenza infection was associated with a twofold increased risk of infantile autism, prolonged episodes of fever caused a threefold increased risk of infantile autism, and use of various antibiotics during pregnancy were potential risk factors for ASD/infantile autism.

CONCLUSIONS: Our results do not suggest that mild infections, febrile episodes, or use of antibiotics during pregnancy are strong risk factors for ASD/infantile autism. The results may be due to multiple testing; the few positive findings are potential chance findings.

The abstract is at <http://pediatrics.aappublications.org/content/early/2012/11/06/peds.2012-1107.abstract>.

International, Poultry (OIE [edited], November 2): Highly pathogenic avian influenza H5; Nepal
Outbreak 1: Madhyapur Thimi Municipality-3, Bode, Bhaktapur, BAGMATI
Date of start of the outbreak: 06/10/2012; Outbreak status: Resolved; Epidemiological unit: Farm
Species: Birds; Susceptible: 2000; Cases: 1220; Deaths: 1220; Destroyed: 780
Affected population: A commercial layer farm having 2000 birds of 1 year of age.

International, Poultry (OIE [edited], November 15): Highly pathogenic avian influenza H7; Australia
Outbreak 1: Maitland, NEW SOUTH WALES
Date of start of the outbreak: 09/11/2012; Outbreak status: Continuing; Epidemiological unit: Farm
Species: Birds; Susceptible: 50000; Cases: 5000; Deaths: 5000
Affected population: Free range egg laying flock

Michigan Wild Bird Surveillance (USDA, as of November 15): For the 2012 season (April 1, 2012-March 31, 2013), highly pathogenic avian influenza H5N1 has not been recovered from the 68 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_Al-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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MDCH Bureau of Laboratories – A. Muyombwe, PhD; V. Vavricka, MS

Table. H5N1 Influenza in Humans – As of August 10, 2012. http://www.who.int/influenza/human_animal_interface/EN_GIP_20120810CumulativeNumberH5N1cases.pdf. Downloaded 8/13/2012. 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	8	8	191	159
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	30	19	608	359