



# 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:** Widespread activity
- **National:** During Week 5, U.S. flu activity stayed elevated, but decreased in most areas

## Updates of Interest

- **National:** Researchers discover influenza type C viruses in pigs for the first time
- **International:** 2 new human infections with the novel coronavirus (NCoV) are identified

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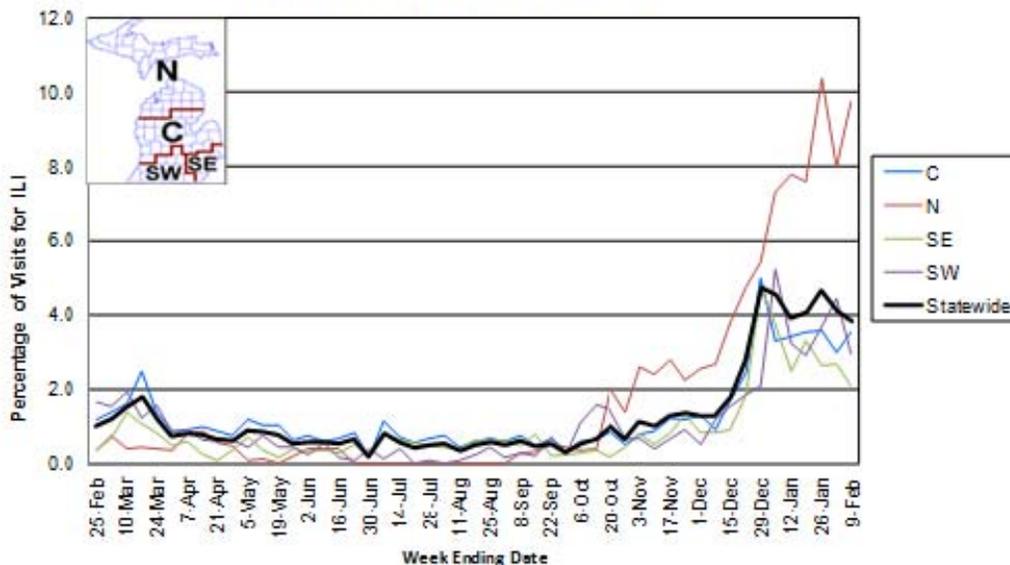
## Influenza Surveillance Reports

**Michigan Disease Surveillance System (as of February 14):** MDSS data for the week ending February 9th indicated that compared to levels from the previous week, aggregate reports decreased and individual reports slightly increased. Aggregate reports are decreased when compared to levels seen during the same time period last year, while individual reports are significantly increased.

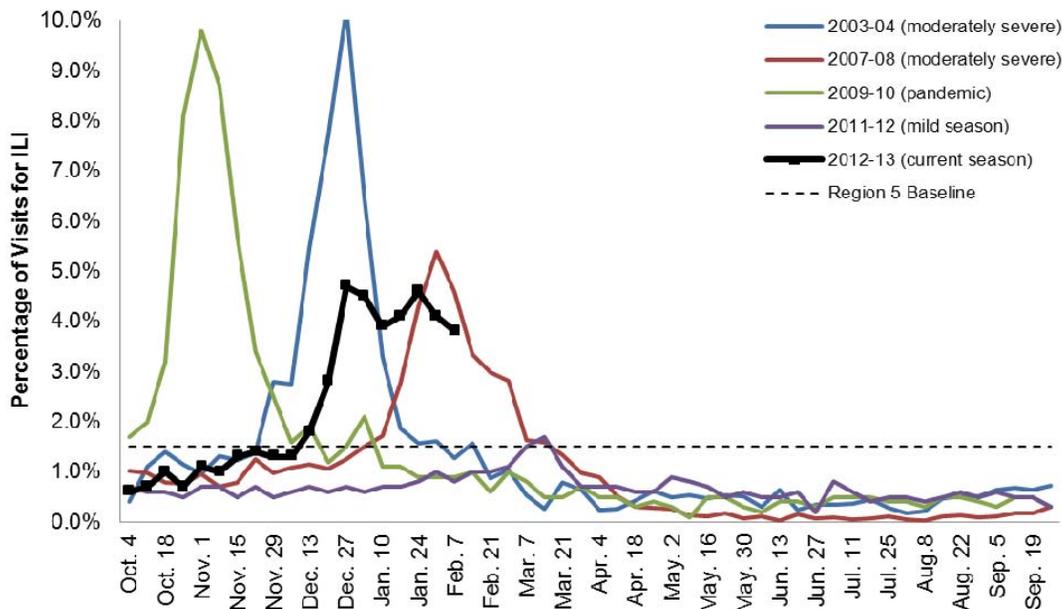
**Emergency Department Surveillance (as of February 14):** Compared to levels from the week prior, emergency department visits from constitutional complaints moderately decreased, while respiratory complaints slightly decreased. Constitutional complaints are higher than levels during the same time period last year, while respiratory complaints are similar. In the past week, there were 4 constitutional alerts in the SW(1) and C(3) Influenza Surveillance Regions and 2 respiratory alerts in the C Region.

**Sentinel Provider Surveillance (as of February 14):** During the week ending February 9, 2013, the proportion of visits due to influenza-like illness (ILI) decreased to 3.8% overall; this is above the regional baseline (1.5%). A total of 416 patient visits due to ILI were reported out of 10,857 office visits. Data were provided by forty-two sentinel sites from the following regions: C (14), N (10), SE (13) and SW (5). ILI activity increased in two surveillance regions: Central (3.5%) and North (9.7%); and decreased in the remaining two surveillance regions: Southwest (2.9%) and Southeast (2.1%). 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, 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 Cristi Carlton at 517-335-9104 or CarltonC2@michigan.gov for more information.

**Hospital Surveillance (as of February 9):** 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, 2012, in the Clinton, Eaton, Genesee, and Ingham counties. 17 new cases were identified during the past week. As of February 9<sup>th</sup>, there have been 183 influenza hospitalizations (129 adult, 54 pediatric) within the catchment area. The incidence rate for adults is 18.9 hospitalizations per 100,000 population and for children is 25.9 hospitalizations per 100,000.

The MDCH Influenza Sentinel Hospital Network monitors influenza hospitalizations reported voluntarily by hospitals statewide. 11 hospitals (SE, SW, C, N) reported for the week ending February 9, 2013. Results are listed in the table below.

Age Group	Hospitalizations Reported During Current Week	Total Hospitalizations 2012-13 Season
0-4 years	0	26 (5SE, 17C, 4N)
5-17 years	1 (1C)	11 (3SE, 6C, 2N)
18-49 years	2 (2N)	31 (17SE, 10C, 4N)
50-64 years	4 (2SE, 1SW, 1N)	49 (30SE, 3SW, 7C, 9N)
≥65 years	11 (7SE, 4N)	174 (110SE, 13SW, 14C, 37N)
<b>Total</b>	18 (9SE, 1SW, 1C, 7N)	291 (165SE, 16SW, 54C, 56N)

**Laboratory Surveillance (as of February 9):** During February 3-9, 16 influenza A/H3 results (5SW, 9C, 2N) and 8 influenza B (1SE, 6C, 1N) results were reported by MDCH BOL. For the 2012-13 season (starting Sept. 30, 2012), MDCH has identified 582 influenza results:

- Influenza A(H3): 472 (121SE, 164SW, 151C, 36N)
- Influenza A(H1N1)pdm09: 9 (6SE, 1C, 2N)
- Influenza B: 101 (24SE, 18SW, 47C, 12N)
- Parainfluenza: 8 (3SW, 1C, 4N)
- RSV: 1 (1N)

16 sentinel labs (SE, SW, C, N) reported for the week ending February 9, 2013. 14 labs (SE, SW, C, N) reported flu A activity; activity at most was at moderate but decreasing. Several SE sites still have high flu A activity. 15 labs (SE, SW, C, N) reported sustained or increasing flu B activity. 3 labs (SE, SW) had low parainfluenza activity. 16 labs (SE, SW, C, N) reported RSV activity, most of which was declining. 3 labs (SE, SW, C) had low HMPV activity. Testing volumes are moderate to high but slowly decreasing.

**Michigan Influenza Antigenic Characterization (as of February 14):** For the 2012-13 season, 68 Michigan influenza B specimens have been characterized at MDCH BOL. 51 specimens are

B/Wisconsin/01/2010-like, matching the B component of the 2012-13 influenza vaccine. 17 influenza B specimens were characterized as B/Brisbane/60/2008-like, which is not included in the 2012-13 vaccine.

**Michigan Influenza Antiviral Resistance Data (as of February 14):** For the 2012-13 season, 23 influenza A/H3 specimens and 7 influenza A(H1N1)pdm09 specimens have been tested at the MDCH BOL for antiviral resistance. None of the influenza isolates 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>.

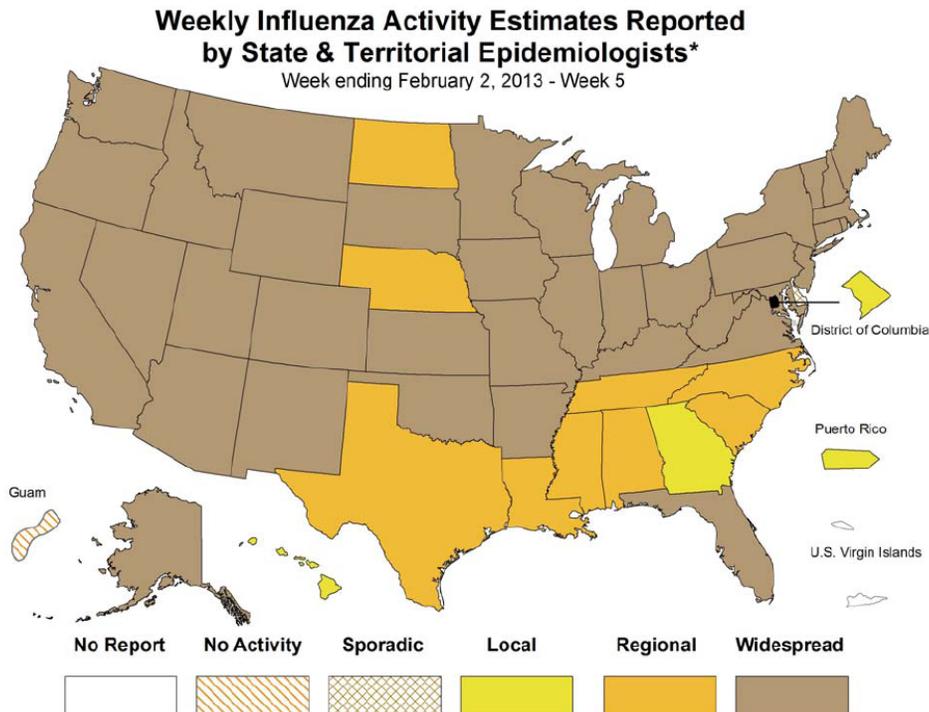
**Influenza-associated Pediatric Mortality (as of February 14):** 5 pediatric influenza-associated influenza mortalities (2 A/H3, 3B) have been reported for the 2012-13 season.

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](http://www.michigan.gov/documents/mdch/ME_pediatric_influenza_guidance_v2_214270_7.pdf).

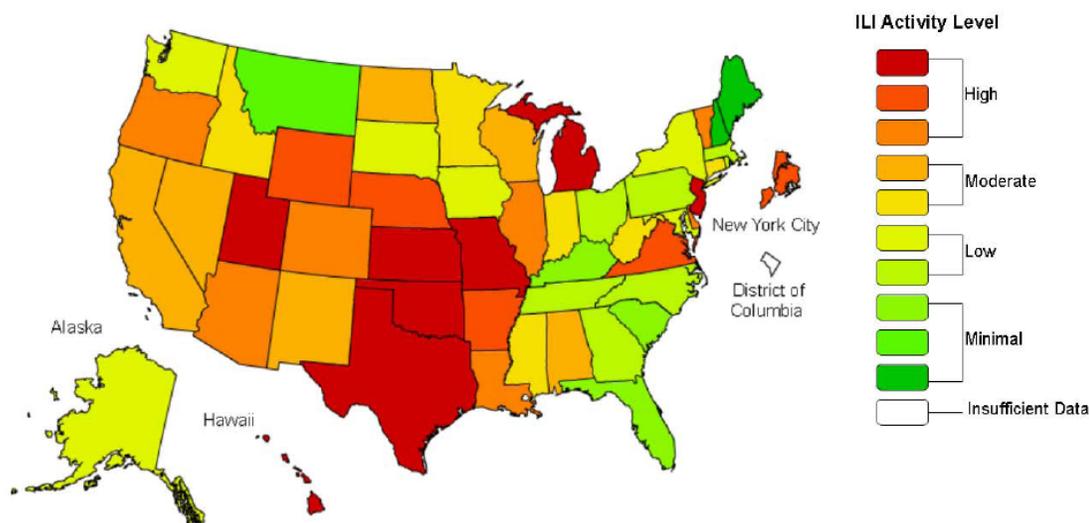
**Influenza Congregate Settings Outbreaks (as of February 14):** In the past week, 4 respiratory outbreaks were reported to MDCH. Outbreaks occurred in a long-term care facility (1SW) and schools (3SE) and had the following test results: influenza A (1SW), negative/not tested (3SE). 97 respiratory outbreaks (18SE, 26SW, 36C, 17N) have been reported to MDCH during the 2012-13 season; testing results are listed below.

- Influenza A/H3: 16 (7SW, 9C)
- Influenza A: 50 (9SE, 11SW, 18C, 12N)
- Influenza B: 6 (1SE, 3SW, 1C, 1N)
- Influenza A and B: 2 (1SE, 1SW)
- Influenza positive: 4 (1SE, 1SW, 2C)
- Negative/no testing: 19 (6SE, 3SW, 6C, 4N)

**National (CDC [edited], February 8):** During week 5 (January 27 - February 2, 2013), influenza activity remained elevated in the United States, but decreased in most areas. Of 10,132 specimens tested and reported by collaborating laboratories, 2,362 (23.3%) were positive for influenza. The proportion of deaths attributed to pneumonia and influenza (P&I) was above the epidemic threshold. Fourteen pediatric deaths were reported. A cumulative rate for the season of 29.8 laboratory-confirmed influenza-associated hospitalizations per 100,000 population was reported. Of all hospitalizations, more than 50% were among adults 65 years and older. The proportion of outpatient visits for influenza-like illness (ILI) was 3.6%. This is above the national baseline of 2.2%. All 10 regions reported ILI above region-specific baseline levels. Nineteen states and New York City experienced high ILI activity; 12 states experienced moderate activity; 13 states experienced low activity; 6 states experienced minimal activity; and the District of Columbia had insufficient data. Thirty-eight states reported widespread influenza activity; 9 states reported regional influenza activity; the District of Columbia, Puerto Rico and 2 states reported local influenza activity; one state reported sporadic activity; Guam reported no activity, and the U.S. Virgin Islands did not report.



**Influenza-Like Illness (ILI) Activity Level Indicator Determined by Data Reported to ILINet  
2012-13 Influenza Season Week 5 ending Feb 02, 2013**



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], February 1):** Influenza activity in North America remained high regionally, though nationally most indicators of transmission began to decrease. Influenza A(H3N2) was the most commonly detected virus subtype. The United States of America reported a sharp increase in the number of pneumonia and influenza-related deaths among adults aged 65+ years. Europe in general reported increasing influenza virus detections over the past weeks, though activity started to decrease in some countries in the northwest. The most commonly detected virus across the continent was A(H1N1)pdm09, while influenza B virus predominated in several countries of western Europe. In the temperate countries of Asia influenza virus detections increased in the last weeks, while it remained low in most of tropical Asia. Influenza activity in North Africa and the Middle East declined overall in the last several weeks, though a few countries reported increases. Influenza A(H1N1)pdm09 was the most commonly detected virus in the region. Low level activity was noted in most tropical countries, with slight increases observed in the Plurinational State of Bolivia and Paraguay. Influenza in countries of the southern hemisphere were currently at inter-seasonal levels.

The entire WHO report is available online at [www.who.int/influenza/surveillance\\_monitoring/updates/latest\\_update\\_GIP\\_surveillance/en/index.html](http://www.who.int/influenza/surveillance_monitoring/updates/latest_update_GIP_surveillance/en/index.html).

MDCH reported WIDESPREAD FLU ACTIVITY to CDC for the week ending February 9, 2013.

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](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, Swine (PLoS Pathogens abstract, February 7):** Hause BM, Ducatez M, Collin EA, Ran Z, Liu R, et al. (2013) Isolation of a Novel Swine Influenza Virus from Oklahoma in 2011 Which Is Distantly Related to Human Influenza C Viruses. *PLoS Pathog* 9(2): e1003176. doi:10.1371/journal.ppat.1003176

Of the *Orthomyxoviridae* family of viruses, only influenza A viruses are thought to exist as multiple subtypes and has non-human maintenance hosts. In April 2011, nasal swabs were collected for virus isolation from pigs exhibiting influenza-like illness. Subsequent electron microscopic, biochemical, and genetic studies identified an orthomyxovirus with seven RNA segments exhibiting approximately 50% overall amino acid identity to human influenza C virus. Based on its genetic organizational similarities to influenza C viruses this virus has been provisionally designated C/Oklahoma/1334/2011 (C/OK). Phylogenetic analysis of the predicted viral proteins found that the divergence between C/OK and human influenza C viruses was similar to that observed between influenza A and B viruses. No cross reactivity was observed between C/OK and human influenza C viruses using hemagglutination inhibition (HI) assays. Additionally, screening of pig and human serum samples found that 9.5% and 1.3%, respectively, of individuals had measurable HI antibody titers to C/OK virus. C/OK virus was able to infect both ferrets and pigs and transmit to naive animals by direct contact. Cell culture studies showed that C/OK virus displayed a broader cellular tropism than a human influenza C virus. The observed difference in cellular tropism was further supported by structural analysis showing that hemagglutinin esterase (HE) proteins between two viruses have conserved enzymatic but divergent receptor-binding sites. These results suggest that C/OK virus represents a new subtype of influenza C viruses that currently circulates in pigs that has not been recognized previously. The presence of multiple subtypes of co-circulating influenza C viruses raises the possibility of reassortment and antigenic shift as mechanisms of influenza C virus evolution.

The study is available online at [www.plospathogens.org/article/info:doi/10.1371/journal.ppat.1003176](http://www.plospathogens.org/article/info:doi/10.1371/journal.ppat.1003176).

**International, Human (WHO, February 11):** The United Kingdom (UK) has informed WHO of a confirmed case with infection of the novel coronavirus (NCoV). The case is a UK resident who developed symptoms of illness on 26 January 2013. Laboratory investigations on respiratory specimens have revealed both an Influenza A(H1N1)pdm09 infection and a confirmed NCoV infection. He is hospitalized in intensive care unit.

Preliminary investigation reveals that the patient had a history of travel to Pakistan and Saudi Arabia. Further investigation into the case is ongoing.

The Health Protection Agency (HPA) has instituted stringent infection control measures around the patient and identified contacts who may have been exposed to the patient during his illness.

This is a sporadic case and does not alter the current WHO risk assessment on NCoV but the new case does indicate that the virus is persistent. As of 11 February 2013, a total of 10 confirmed cases of human infection with a novel coronavirus have been notified to WHO.

Based on the current situation and available information, WHO encourages all Member States to continue their surveillance for severe acute respiratory infections (SARI) and to carefully review any unusual patterns. Testing for the new coronavirus of patients with unexplained pneumonias, or patients with severe, progressive or complicated illness not responding to treatment, should be considered especially in persons residing in or returning from the Arabian peninsula and neighboring countries.

Any clusters of SARI or SARI in health care workers should be thoroughly investigated, regardless of where in the world they occur.

New human cases and clusters should be promptly reported both to national health authorities and to WHO.

WHO does not advise special screening at points of entry with regard to this event nor does it recommend that any travel or trade restrictions are applied.

The update is available online at [http://www.who.int/csr/don/2013\\_02\\_11b/en/index.html](http://www.who.int/csr/don/2013_02_11b/en/index.html).

**International, Human (WHO, February 13):** The United Kingdom (UK) has informed WHO of another confirmed case of infection with the novel coronavirus (NCoV). The patient is a UK resident and a relative of the case announced on 11 February 2013.

The latest confirmed case does not have any recent travel history outside the UK and is currently hospitalized in an intensive care unit. It is understood that this patient has pre-existing medical conditions that may have increased susceptibility to respiratory infections.

Confirmed NCoV in a person without recent travel history indicates that infection was acquired in the UK. To date, evidence of person-to-person transmission has been limited. Although this case is suggestive of person-to-person transmission, on the basis of current evidence, the risk of sustained person-to-person transmission appears to be very low.

The Health Protection Agency (HPA) is following up on all close contacts (family and healthcare workers) who may have been exposed to either of these two new confirmed cases.

As of 13 February 2013, a total of 11 confirmed cases of human infection with NCoV have been notified to WHO, with no change in the number of fatalities i.e., five deaths since April 2012.

Based on the current situation and available information, WHO encourages all Member States to continue their surveillance for severe acute respiratory infections (SARI) and to carefully review any unusual patterns. Testing for the new coronavirus should be considered in patients with unexplained pneumonias, or in patients with unexplained severe, progressive or complicated respiratory illness not responding to treatment.

Any clusters of SARI or SARI in healthcare workers should be thoroughly investigated, regardless of where in the world they occur.

New cases and clusters of the NCoV should be reported promptly both to national health authorities and to WHO.

WHO does not advise special screening at points of entry with regard to this event nor does it recommend that any travel or trade restrictions be applied.

WHO continues to monitor closely the situation.

The update is available online at [http://www.who.int/csr/don/2013\\_02\\_13/en/index.html](http://www.who.int/csr/don/2013_02_13/en/index.html).

**International, Human (WHO, February 8):** The Ministry of Health (MoH) of the Kingdom of Cambodia wishes to advise members of the public that one new more case of avian influenza has been confirmed positive for the H5N1 virus.

The sixth case is a 5-year-old girl from Angk Krasang village, Prey Lvea commune, Prey Kabass district in Takeo province has been diagnosed with H5N1 influenza on 7th February 2013 by Institut Pasteur du Cambodge. She developed symptoms on 25th January 2013 with fever, cough, and vomiting. She was initially treated by local private practitioners. Her condition worsened and she was admitted to Kantha Bopha Hospital on 31st February with fever, cough, and dyspnoea. Unfortunately, despite intensive medical care, she died on 7th February. There is evidence of recent deaths among poultry in the village and the girl had history of coming into contact with poultry prior to becoming sick. The girl is the twenty-seven person in Cambodia to become infected with H5N1 virus, and the sixth person this year and the twenty-four person to die from complications of the disease. Of all the twenty seven cases, 18 were children under 14, and eighteen of the twenty seven confirmed cases occurred in females.

"Avian influenza H5N1 is still a threat to the health of Cambodians. This is the sixth case of H5N1 infection in human in early this year, and children still seem to be most vulnerable. I urge parents and guardians to keep children away from sick or dead poultry, discourage them from playing in areas where poultry stay and wash their hands often. If they have fast or difficulty breathing, they should be brought to medical attention at the nearest health facilities and attending physicians be made aware of any exposure to sick or dead poultry." said HE Dr. Mam Bunheng, Minister of Health.

The Ministry of Health's Rapid Response Teams (RRT) have gone to the hospital and the field to identify the girl's close contacts, any epidemiological linkage among the six cases and initiate preventive treatment as required. In addition, public health education campaign is being conducted in the village to inform families on how to protect themselves from contracting avian influenza. The government's message is - wash hands often; keep children away from poultry; keep poultry away from living areas; do not eat sick poultry; and all poultry eaten should be well cooked.

H5N1 influenza is a flu that normally spreads between sick poultry, but it can sometimes spread from poultry to humans. Human H5N1 Avian Influenza is a very serious disease that requires hospitalization.

Although the virus currently does not easily spread among humans, if the virus changes it could easily be spread like seasonal influenza. Hence, early recognition of cases is important.

Globally since 2003, there have been 616 laboratory confirmed cases of avian influenza with 365 related deaths.

The Ministry of Health will continue to keep the public informed of developments via the MoH website [www.cdcmoh.gov.kh](http://www.cdcmoh.gov.kh) where relevant health education materials can also be downloaded.

The press release is available at [www.wpro.who.int/mediacentre/releases/2013/20130208/en/index.html](http://www.wpro.who.int/mediacentre/releases/2013/20130208/en/index.html).

**International, Human (Hong Kong Centre for Health Protection press release [edited], February 10):** The Centre for Health Protection (CHP) of the Department of Health received notification from the Ministry of Health (MoH) today (February 10) concerning two confirmed human cases of influenza A (H5N1) in Guizhou.

A CHP spokesman said the patients were a 21-year-old woman and a 31-year-old man living in Guizhou. They are now in critical condition. Both patients did not report obvious exposure history to poultry before the onset of symptoms. There is no epidemiological link between these two cases.

Laboratory tests on the patients' specimens by the Mainland health authorities yielded a positive result for H5N1.

The CHP is maintaining close liaison with the MoH to obtain more information on the case. "We will heighten our vigilance and continue to maintain stringent port health measures in connection with this development," the spokesman said.

The complete press release is available at [www.info.gov.hk/gia/general/201302/10/P201302100501.htm](http://www.info.gov.hk/gia/general/201302/10/P201302100501.htm).

**International, Human (WHO [edited], February 13):** The Ministry of Health (MoH) of the Kingdom of Cambodia wishes to advise members of the public that one more new human case of avian influenza has been confirmed positive for the H5N1 virus.

The seventh case, a 3-year-old girl from Trapeang Kamphleanh village, Ang Phnom Toch commune, Angkor Chey district in Kampot province, was found positive for influenza H5N1 on 11th February 2013 by Institut Pasteur du Cambodge. She developed fever and a red rash on 3rd February 2013 and was initially treated by local private practitioners. Her condition worsened and she was admitted to Kantha Bopha Hospital on 6th February 2013 with fever, abdominal pain and somnolence and died on 13 February 2013. There is evidence of recent deaths among poultry in the village and the girl had history of coming into contact with poultry prior to becoming sick.

The girl is the seventh person this year and twenty-eighth person to become infected with H5N1 virus, and the twenty-fifth person to die from complications of the disease in Cambodia. Of the twenty-eight confirmed cases, 19 were children under 14, and nineteen of the twenty-eight were female.

"Avian influenza H5N1 remains a serious threat to the health of Cambodians, especially children. This is the seventh case of H5N1 infection in humans this year, and children still seem to be most vulnerable. Children are at high risk because they may play where poultry are found and I urge parents and guardians to keep children away from sick or dead poultry and prevent them from playing with chickens and ducks. Parents and guardians must also make sure children wash their hands with soap and water after any contact with poultry. If they have fast or difficult breathing, they should seek medical attention at the nearest health facility and attending physicians must be made aware of any exposure to sick or dead poultry", said HE Dr. Mam Bunheng, Minister of Health.

The Ministry of Health's Rapid Response Teams (RRT) have gone to the hospital and the field to identify the girl's close contacts, any epidemiological linkage among the seven cases and initiate preventive treatment as required. In addition, a public health education campaign is being conducted in the village to inform families on how to protect themselves from contracting avian influenza. The government's message is - wash hands often; keep children away from poultry; keep poultry away from living areas; do not eat sick poultry; and all poultry eaten should be well cooked.

H5N1 influenza is a flu that normally spreads between sick poultry, but it can sometimes spread from poultry to humans. Human H5N1 Avian Influenza is a very serious disease that requires hospitalization. Although the virus currently does not easily spread among humans, if the virus changes it could easily be spread like seasonal influenza. Hence, early recognition of cases is important.

Globally since 2003, there have been 619 laboratory confirmed human cases of avian influenza with 366 related deaths.

**International, Poultry (OIE [edited], February 8):** Highly pathogenic avian influenza H5N1; Bhutan Outbreak 1: Namkhaling, Pelrithang & Chuzargang, Gelephu, Chuzagang, Sarpang, Sarpang  
Date of start of the outbreak: 14/01/2013; Outbreak status: Continuing; Epidemiological unit: Farm  
Species: Birds; Susceptible: 85956; Cases: 76; Deaths: 76; Destroyed: 832  
Affected population: Backyard free ranging local chicken in Chuzargang and Namkhaling villages.  
Backyard and improved chicken in Pelrithang village.

**Michigan Wild Bird Surveillance (USDA, as of February 14):** 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\\_AI-Asia.htm](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](mailto: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 February 1, 2013.** [http://www.who.int/influenza/human\\_animal\\_interface/EN\\_GIP\\_20130201\\_CumulativeNumberH5N1cases.pdf](http://www.who.int/influenza/human_animal_interface/EN_GIP_20130201_CumulativeNumberH5N1cases.pdf). Downloaded 2/1/2013. Cumulative lab-confirmed cases reported to WHO. Total cases include deaths.

Country	2003-2006		2007		2008		2009		2010		2011		2012		2013		Total	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Azerbaijan	8	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	5
Bangladesh	0	0	0	0	1	0	0	0	0	0	2	0	3	0	0	0	6	0
Cambodia	6	6	1	1	1	0	1	0	1	1	8	8	3	3	5	4	26	23
China	22	14	5	3	4	4	7	4	2	1	1	1	2	1	0	0	43	28
Djibouti	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Egypt	18	10	25	9	8	4	39	4	29	13	39	15	11	5	0	0	169	60
Indonesia	75	58	42	37	24	20	21	19	9	7	12	10	9	9	0	0	192	160
Iraq	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2
Lao PDR	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	2	2
Myanmar	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Nigeria	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Pakistan	0	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	3	1
Thailand	25	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	17
Turkey	12	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	4
Vietnam	93	42	8	5	6	5	5	5	7	2	0	0	4	2	0	0	123	61
Total	263	158	88	59	44	33	73	32	48	24	62	34	32	20	5	4	615	364