



# MI Flu Focus

Influenza Surveillance Updates  
Bureaus of Epidemiology and Laboratories



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## Updates of Interest

- **National:** CDC releases a Health Advisory to public health officials, laboratorians, and clinicians related to H3N2v influenza cases
- **National:** Over 150 human cases of H3N2v influenza have been reported since July 2012

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### **\*\*H3N2v Influenza Update\*\***

Over 150 human cases of variant influenza A (H3N2) (H3N2v) have been reported in association with swine exposure since July 2012 in Indiana, Ohio, Illinois and Hawaii. The Michigan Department of Community Health will be issuing updated guidance for healthcare providers, laboratories and local health departments by Tuesday, August 14 on the MDCH Influenza Website: [www.michigan.gov/flu](http://www.michigan.gov/flu). Current information on this situation can be found on the CDC H3N2v website at [www.cdc.gov/flu/swineflu/influenza-variant-viruses-h3n2v.htm](http://www.cdc.gov/flu/swineflu/influenza-variant-viruses-h3n2v.htm).

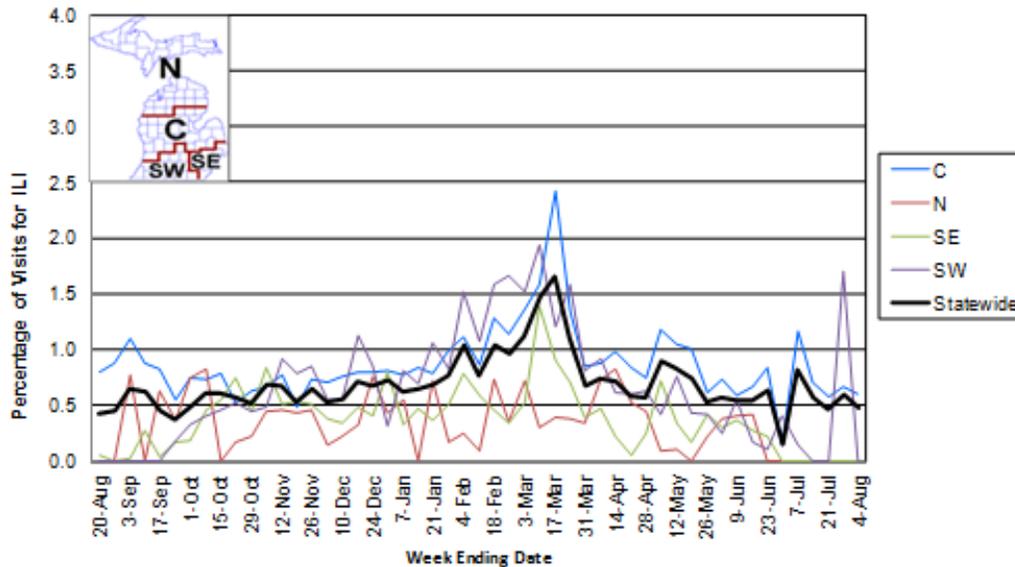
### **Influenza Surveillance Reports**

**Michigan Disease Surveillance System (as of August 9):** MDSS data for the week ending August 4<sup>th</sup> 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.

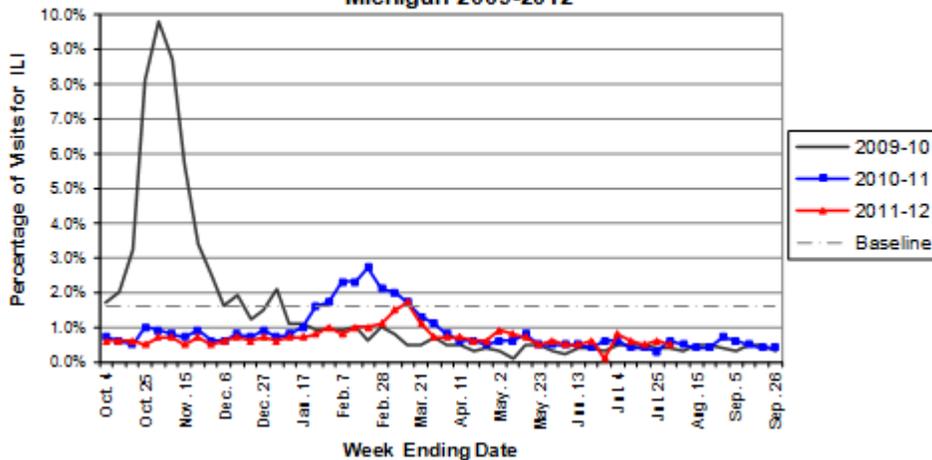
**Emergency Department Surveillance (as of August 9):** Compared to levels from the week prior, emergency department visits from both constitutional and respiratory complaints remained steady. Both constitutional and respiratory complaints are similar to levels reported during the same time period last year. In the past week, there were four constitutional alerts in the SE(1), C(1), and N(2) Influenza Surveillance Regions and seven respiratory alerts in the SE(1), C(4) and N(2) Regions.

**Sentinel Provider Surveillance (as of August 9):** During the week ending August 4, 2012, the proportion of visits due to influenza-like illness (ILI) slightly decreased to 0.5% overall; this is below the regional baseline of (1.6%). A total of 18 patient visits due to ILI were reported out of 3,794 office visits. Data were provided by twenty sentinel sites from the following regions: C(12), N(2), SE(4), SW(2). ILI activity decreased in two surveillance regions: Central (0.6%) and Southwest (0.0%). 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 August 4):** 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 August 4, 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
<b>Total</b>	<b>0</b>	<b>147</b>

**Laboratory Surveillance (as of August 4):** During July 29-August 4, 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: 3 (2SE, 1C)
- Adenovirus: 3 (3SE)
- RSV: 4 (1SW, 1C, 2N)

9 sentinel labs (SE, SW, C, N) reported for the week ending August 4, 2012. One lab (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 9):** 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 9):** 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 9):** 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](http://www.michigan.gov/documents/mdch/ME_pediatric_influenza_guidance_v2_214270_7.pdf).

**Influenza Congregate Settings Outbreaks (as of August 9):** No new respiratory outbreaks were reported to MDCH during the past week. 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], August 3):** 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 Brazil, Cuba, Ecuador, El Salvador and Panama in the Americas (influenza A(H1N1)pdm09 and type B); Ghana and Madagascar in sub-Saharan Africa (influenza A(H3N2)); southern China, Singapore and Viet Nam in Asia (A(H3N2) in China and Viet Nam, A(H3N2), A(H1N1)pdm09, and B in Singapore). The influenza season has continued in most temperate countries of the southern hemisphere for which there is data and appears to have peaked in Chile and South Africa, where many indicators have recently begun to decline. In contrast, very low numbers of detections have been reported throughout the last several weeks in Argentina. Rates of disease have continued to increase across Australia and New Zealand. Influenza A(H3N2) viruses were the most commonly reported type/sub-type in recent weeks across the Southern Hemisphere temperate region in Chile, South Africa, Australia, and New Zealand. However, the distribution is not uniform across Australia where influenza type B accounts for a significant portion of viruses detected in the Western Australia, Northern Territory, and Queensland. A(H1N1)pdm09 is the most common influenza virus detected in Paraguay as well as neighboring areas of southern Brazil and the Plurinational State of Bolivia.

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).

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](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 (CDC Health Advisory [edited], August 3):** Increase in Influenza A H3N2v Virus Infections in Three U.S. States

Summary and Background: Multiple infections with variant\* influenza A (H3N2v) viruses have been identified in 3 states in recent weeks. From July 12 through August 3, 2012, 16 cases of H3N2v were reported and confirmed by CDC. This virus was first detected in humans in July 2011. It has also been isolated in U.S. swine in many U.S. states. Since July 12, 2011, there have been 29 cases of H3N2v virus infection, including the 16 cases occurring in the last three weeks. All 29 cases were infected with H3N2v viruses that contain the matrix (M) gene from the influenza A (H1N1)pdm09 virus. This M gene may confer increased transmissibility to and among humans, compared to other variant influenza viruses. All cases have been laboratory-confirmed at CDC. Each of the 16 cases identified since July 12, 2012, reported contact with swine prior to illness onset; in 15 cases, contact occurred while attending or exhibiting swine at an agricultural fair. While the viruses identified in these cases are genetically nearly identical, separate swine exposure events in each state were associated with human infections. There is no indication that the cases in different states are epidemiologically related.

Clinical characteristics of the 16 H3N2v recent cases have been generally consistent with signs and symptoms of seasonal influenza, and have included fever, cough, pharyngitis, myalgia, and headache. No hospitalizations or deaths have occurred among the 16 confirmed cases since July 2012. Public health and agriculture officials are investigating the extent of disease among humans and swine, and additional cases are likely to be identified as the investigation continues.

Novel influenza A virus infection has been a nationally notifiable condition in the United States since 2007. Since that time, human infection with animal-origin influenza viruses has been rare, with ≤6 cases reported each year, until 2011 when 14 cases were identified. While most of the cases are thought to have been infected as a result of close contact with swine, limited human-to-human transmission of this virus was identified in some cases in 2011. Therefore, enhanced influenza surveillance is indicated, especially in regions and states with confirmed H3N2v cases.

Interim Recommendations for the Public:

- Persons who are at high risk for influenza complications (e.g., underlying chronic medical conditions such as asthma, diabetes, heart disease, or neurological conditions, or who are pregnant or younger than 5 years, older than 65 years of age or have weakened immune systems) should consider avoiding exposure to pigs and swine barns this summer, especially if ill pigs have been identified.
- Persons engaging in activities that may involve swine contact, such as attending agricultural events or exhibiting swine, should wash their hands frequently with soap and running water before and after exposure to animals; avoid eating or drinking in animal areas; and avoid close contact with animals that look or act ill.
- Patients who experience influenza-like symptoms following direct or close contact with pigs and who seek medical care should inform their health care provider about the exposure.
- Patients with influenza-like illness who are at high risk for influenza complications (e.g., underlying chronic medical conditions such as asthma, diabetes, heart disease, or neurological conditions, or who are pregnant or younger than 5 years, older than 65 years of age or have weakened immune systems) should see their health care provider promptly to determine if treatment with antiviral medications is warranted.
- Influenza viruses have not been shown to be transmissible to people through eating properly handled and prepared pork or other products derived from pigs. For more information about the proper handling and preparation of pork, visit the USDA website fact sheet “Fresh Pork from Farm to Table.”

Interim Recommendations for Health Care Providers:

- Clinicians who suspect influenza in persons with recent exposure to swine should obtain a nasopharyngeal swab or aspirate from the patient, place the swab or aspirate in viral transport medium, and contact their state or local health department to arrange transport and request a timely diagnosis at a state public health laboratory.
- Reverse-transcription polymerase chain reaction (RT-PCR) testing for influenza should be considered for patients with influenza-like illness prior to the start of the traditional influenza season in October.
- RT-PCR testing for influenza should be considered throughout the year for patients with influenza-like illness reporting recent swine exposure and for those who can be epidemiologically linked to confirmed cases of variant influenza.
- Commercially available rapid influenza diagnostic tests (RIDTs) may not detect H3N2v virus in respiratory specimens. Therefore, a negative rapid influenza diagnostic test result does not exclude infection with H3N2v or any influenza virus. In addition, a positive test result for influenza A cannot confirm H3N2v virus infection because these tests cannot distinguish between influenza A virus subtypes (they do not differentiate between human influenza A viruses and H3N2v virus). Therefore, respiratory specimens should be collected and sent for RT-PCR testing at a state public health lab.
- Clinicians should consider antiviral treatment with oral oseltamivir or inhaled zanamivir in patients with suspected or confirmed H3N2v virus infection. Antiviral treatment is most effective when started as soon as possible after influenza illness onset.

The entire health advisory is available online at <http://www.bt.cdc.gov/HAN/han00325.asp>.

**National, Human (CIDRAP [edited], August 9):** The number of recent human cases of swine-origin variant H3N2 influenza (H3N2v) in recent weeks climbed to 152 today as Illinois reported its first case and Indiana announced more infections.

Meanwhile, scientists said the novel virus appears to be largely linked to pigs being raised by children for showing at exhibitions.

At a media briefing today to address the steep rise in cases, led by big increases yesterday in Indiana and Ohio, the CDC said the flurry of new cases is partly the result of a change in reporting requirements. State labs that confirm H3N2v cases can now report them directly without waiting for CDC confirmation.

However, Joe Bresee, MD, medical epidemiologist in the CDC's Influenza Division, told reporters that the quickly mounting number of cases is real, with investigations in several states linking cases to agricultural fairs and pig exhibitions, which are popular this time of year. Streamlining state reporting of new H3N2v cases allows "a more real-time view of how the situation is evolving in states," he said.

For example, Indiana today reported seven more cases, pushing the national total to 152 after Bresee confirmed 145 recent cases during the briefing. The Indiana State Department of Health (ISDH) said in a statement that it confirmed its first two cases in Tippecanoe County, raising the number of affected counties to 19.

Today's CDC total includes the first case from Illinois. The patient is a child who attended the Coles County Fair, got sick last week, and has not been hospitalized, according to a press release today from the Illinois Department of Public Health (IDPH). The case pushes the number of affected states to four, with Hawaii having confirmed a case Jul 31.

The number of new cases will change, Bresee said, even daily, as each state reports its newly confirmed cases. However, starting tomorrow the CDC will issue H3N2v updates every Friday.

Bresee said more than 90% of the H3N2v infections are in children who have direct contact with pigs, such as raising and showing them at fairs, he said. Other cases involved indirect exposure, such as being in swine barns or other pig environments.

The CDC has said it expects to see more cases, with state and county fair seasons still in full swing now, especially in the Midwest. For example, the Iowa State Fair starts today, and the Minnesota State Fair begins Aug 23.

At state and county fairs, it's not unusual to see children and their families spending long hours in swine barns, tending the animals and waiting to show their animals. Swine barns are also popular exhibits for fairgoers, who enjoy catching glimpses of, for example, the winner of the "biggest pig" contest or mother pigs with their newborn piglets.

The high burden in kids might suggest that adults have some cross-protection from earlier exposure to similar strains, Bresee said. CDC researchers are exploring cross-protection issues and are conducting genetic sequencing tests on the positive samples states are submitting. Bresee said that so far scientists are seeing a high degree of genetic similarity among the H3N2v strains.

Bresee also said that as yet no sustained human-to-human infections have been reported, though the CDC expects to see some limited spread, given that three of last year's H3N2v infections that occurred in children who had contact with each other but no known pig exposure.

There's no appreciable risk in people who aren't exposed to pigs, Bresee said. "This is not a pandemic situation."

Most infections have been mild and self-limiting, with symptoms resembling seasonal flu. So far two hospitalizations have been reported; both patients are recovering and have been discharged.

Given the high risk of flu complications to people with underlying medical conditions, including with H3N2v, Bresee said the CDC advises elderly people, young children, and those with chronic medical conditions to avoid pig exposure at fairs. He also said the CDC urges people who are exposed to pigs in fair settings to wash their hands frequently and to avoid eating or bringing food into the settings.

The CDC hopes that the prevention steps will slow the pace of new cases and at this point does not recommend that states cancel pig exhibitions.

Some severe infections have occurred, and Bresee said healthcare workers who suspect H3N2v in a patient with underlying conditions institute treatment with oseltamivir (Tamiflu) or zanamivir (Relenza).

Though there's not a lot of data on how common novel H3N2 is in fair pigs this summer, the CDC's epidemiologic picture seems to square with preliminary findings that a group from the Ohio State University (OSU) is seeing as they travel to county fairs testing pigs for influenza A.

Two members of the team told CIDRAP News today that they have found only the novel H3N2 virus in pigs this year, at levels consistent other viruses found in previous years. Many of the pigs testing positive for the virus are connected with young people who raise them noncommercially for exhibitions. Richard Slemons, DVM, principal investigator, said, "We're looking at this niche."

The virus types changed in fair pigs over the 4-year testing period. In 2009, the group found H1N2 and H3N2 swine influenza viruses. Then in 2010, their tests yielded the H3N2 swine influenza strain. In 2011, they found H1N2 in their samples again along with H3N2, and both strains had the matrix gene from the 2009 H1N1 virus. That year, no human illnesses were linked to the pigs they tested. So far this summer, they've detected only H3N2 with the former pandemic virus' matrix gene.

The pigs testing positive for the virus do not have any clinical symptoms, Slemons and Bowman said, with isn't unusual but makes it difficult for people visually screening the pigs at fairs to tell if the animals are infected and pose a threat to humans.

Members of the research team have presented their findings at scientific meetings, which have been attended by representatives from the CDC, USDA, and NIH. Slemons and Bowman said the project's purpose is to provide a basis for making evidence-based decisions.

A spokesperson for the Indiana State Board of Animal Health said this week that 29 of 30 pigs that were tested in connection with three recent county fairs had H3N2v. At one of those fairs, in LaPorte County, some of the pigs showed clinical symptoms, according to an earlier report.

The full article is at [www.cidrap.umn.edu/cidrap/content/influenza/swineflu/news/aug0912fairflu.html](http://www.cidrap.umn.edu/cidrap/content/influenza/swineflu/news/aug0912fairflu.html).

**International, Poultry (OIE [edited], August 2):** Highly pathogenic avian influenza H7N3; Mexico  
Outbreak 1: Teocaltiche, foco 39, Teocaltiche, JALISCO

Date of start of the outbreak: 26/07/2012; Outbreak status: Continuing; Epidemiological unit: Farm  
Species: Birds; Susceptible: 27772; Cases: 5537; Deaths: 1000; Destroyed: 0

Outbreak 2: Teocaltiche, foco 36, Teocaltiche, JALISCO

Date of start of the outbreak: 26/07/2012; Outbreak status: Continuing; Epidemiological unit: Farm  
Species: Birds; Susceptible: 31070; Cases: 3090; Deaths: 1000; Destroyed: 0

Outbreak 3: Teocaltiche, foco 38, Teocaltiche, JALISCO

Date of start of the outbreak: 26/07/2012; Outbreak status: Continuing; Epidemiological unit: Farm  
Species: Birds; Susceptible: 29408; Cases: 0; Deaths: 0; Destroyed: 0

Outbreak 4: Teocaltiche, foco 40, Teocaltiche, JALISCO

Date of start of the outbreak: 27/07/2012; Outbreak status: Continuing; Epidemiological unit: Farm  
Species: Birds; Susceptible: 72000; Cases: 0; Deaths: 0; Destroyed: 0

Outbreak 5: Teocaltiche, foco 37, Teocaltiche, JALISCO

Date of start of the outbreak: 26/07/2012; Outbreak status: Continuing; Epidemiological unit: Farm  
Species: Birds; Susceptible: 31036; Cases: 9227; Deaths: 1000; Destroyed: 0

Outbreak 6: Teocaltiche, foco 41, Teocaltiche, JALISCO

Date of start of the outbreak: 27/07/2012; Outbreak status: Continuing; Epidemiological unit: Farm  
Species: Birds; Susceptible: 72200; Cases: 0; Deaths: 0; Destroyed: 0

**International, Poultry (OIE [edited], August 7):** Highly pathogenic avian influenza H5N1; Vietnam

Outbreak 1: Thach Hoi, Thach Hoi, Thach Ha, HA TINH

Date of start of the outbreak: 02/08/2012; Outbreak status: Continuing; Epidemiological unit: Village  
Species: Birds; Susceptible: 1857; Cases: 956; Deaths: 0; Destroyed: 1857

Outbreak 2: Cam Thach, Cam Thach, Cam Xuyen, HA TINH

Date of start of the outbreak: 27/07/2012; Outbreak status: Continuing; Epidemiological unit: Village  
Species: Birds; Susceptible: 1475; Cases: 475; Deaths: 0; Destroyed: 1475

Outbreak 3: Thach Tan, Thach Tan, Thach Ha, HA TINH

Date of start of the outbreak: 27/07/2012; Outbreak status: Continuing; Epidemiological unit: Village  
Species: Birds; Susceptible: 2921; Cases: 351; Deaths: 0; Destroyed: 2921

Outbreak 4: Thach Thang, Thach Thang, Thach Ha, HA TINH

Date of start of the outbreak: 02/08/2012; Outbreak status: Continuing; Epidemiological unit: Village  
Species: Birds; Susceptible: 751; Cases: 245; Deaths: 0; Destroyed: 751

Outbreak 5: An Thai, An Thai, An Lao, Hai Phong

Date of start of the outbreak: 18/07/2012; Outbreak status: Continuing; Epidemiological unit: Village  
Species: Birds; Cases: 3110; Destroyed: 22440

Outbreak 6: Cam Quan, Cam Quan, Cam Xuyen, HA TINH

Date of start of the outbreak: 16/07/2012; Outbreak status: Continuing; Epidemiological unit: Village  
Species: Birds; Cases: 309; Destroyed: 309

**International, Poultry (OIE [edited], August 8):** Highly pathogenic avian influenza H5N1; Vietnam

Outbreak 1: Yen Son, Yen Son, Tam Diep, Ninh Binh

Date of start of the outbreak: 31/07/2012; Outbreak status: Continuing; Epidemiological unit: Village  
Species: Birds; Susceptible: 1000; Deaths: 297; Destroyed: 703

Outbreak 2: Yen Lam, Yen Lam, Yen Mo, Ninh Binh

Date of start of the outbreak: 27/07/2012; Outbreak status: Continuing; Epidemiological unit: Village  
Species: Birds; Susceptible: 480; Deaths: 280; Destroyed: 200

**Michigan Wild Bird Surveillance (USDA, as of August 9):** 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](http://www.oie.int/download/AVIAN%20INFLUENZA/A_AI-Asia.htm).

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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](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