



MI FluFocus

Influenza Surveillance and Avian Influenza Update

Bureau of Epidemiology
Bureau of Laboratories



Editor: Susan Vagasky, DVM
Surveillance and Infectious Disease Epidemiology
VagaskyS@Michigan.gov

June 5, 2009
Vol. 6; No. 22

New updates in this issue:

- **Michigan Surveillance:** Influenza activity continues to be elevated above baseline levels.
 - **National Surveillance:** Novel A H1N1 viruses comprise the majority of influenza viruses circulating.
 - **International Surveillance:** Over 21,900 cases of novel A H1N1 influenza have been identified.
-

******Novel Influenza A (H1N1) virus (Swine-origin Flu) Investigation******

Michigan (MDCH): As of June 2, 2009, 5:00pm, the Michigan Department of Community Health had confirmed 298 cases of swine-origin influenza A (H1N1) in Michigan, including 1 death. The MDCH Bureau of Laboratories is now able to perform confirmatory testing for this virus, so testing turnaround time is greatly reduced.

Please continue to reference the State of Michigan's swine-origin influenza A (H1N1) website at www.michigan.gov/swineflu for the most up to date case counts and additional information. Local health departments can find additional guidance documents on the MI-HAN homepage.

Surveillance Update: Recent analysis indicates that enough information has been gathered from confirmed cases of novel influenza (H1N1) to adequately describe the virulence of this infection. Michigan's contribution to this effort in the form of partnership between State and Local Public Health agencies toward the identification of cases warranting testing and epidemiologic follow-up has been commended. With enough information gathered, we are again looking to revise our sampling protocols. At this time, there is no longer a clear surveillance need for the submission of any specimens from hospitalized and high risk patients for confirmatory testing.

We will continue to perform the current sampling and testing program established at our Sentinel Influenza partner sites, as well as the usual seasonal influenza testing protocols (pediatric death, outbreaks etc). Of course, any testing requests to MDCH at the request of a local health department will be accepted. The MDCH website will be reporting the total "confirmed and probable" numbers on its website each Wednesday.

National (CDC): As of June 5, 2009, 11:00am, the Centers for Disease Control and Prevention (CDC) is reporting 13,217 confirmed human infections, including 27 deaths, in the United States. These cases are being reported from 52 states and the District of Columbia and Puerto Rico. This number is expected to rise as the outbreak evolves and now that state public health laboratories have a diagnostic test to confirm swine-origin influenza A (H1N1) infections. For the most up to date information, including guidance documents, please visit the CDC's website at www.cdc.gov/h1n1flu/.

Novel influenza A (H1N1) is a new flu virus of swine origin that was first detected in April, 2009. The virus is infecting people and is spreading from person-to-person, sparking a growing outbreak of illness in the United States. An increasing number of cases are being reported internationally as well.

It's thought that novel influenza A (H1N1) flu spreads in the same way that regular seasonal influenza viruses spread; mainly through the coughs and sneezes of people who are sick with the virus.

Novel influenza A (H1N1) activity is now being detected through CDC's [routine influenza surveillance systems](#) and reported weekly in FluView. CDC tracks U.S. influenza activity through multiple systems across five categories. The fact that novel H1N1 activity can now be monitored through seasonal

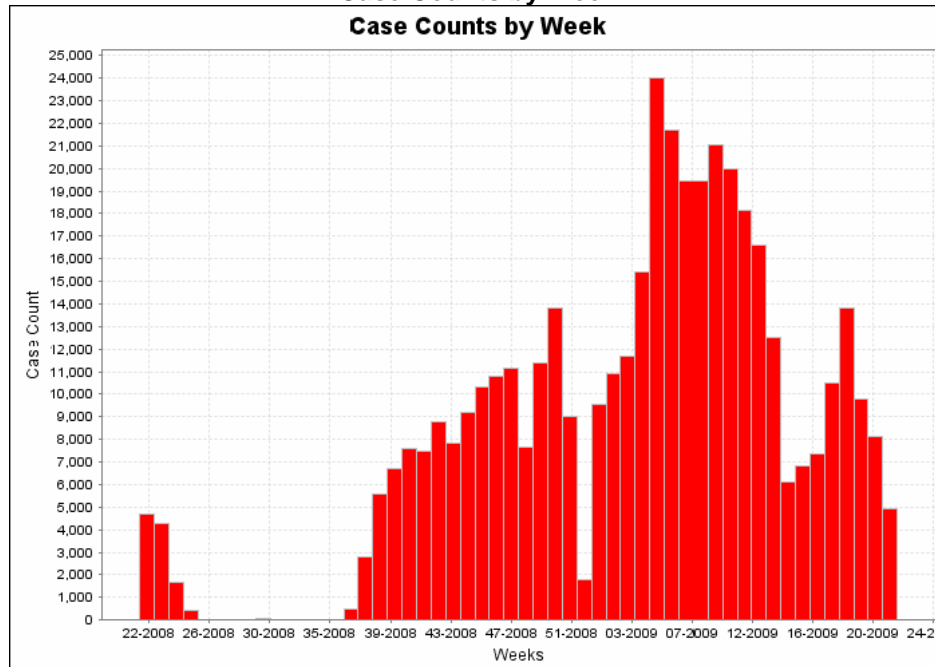
surveillance systems is an indication that there are higher levels of influenza-like illness in the United States than is normal for this time of year.

International (WHO): As of 6:00 GMT, 5 June 2009, 69 countries have officially reported 21,940 cases of influenza A (H1N1) infection, including 125 deaths. Updated case counts and notices can be found online at <http://www.who.int/csr/disease/swineflu/en/index.html>.

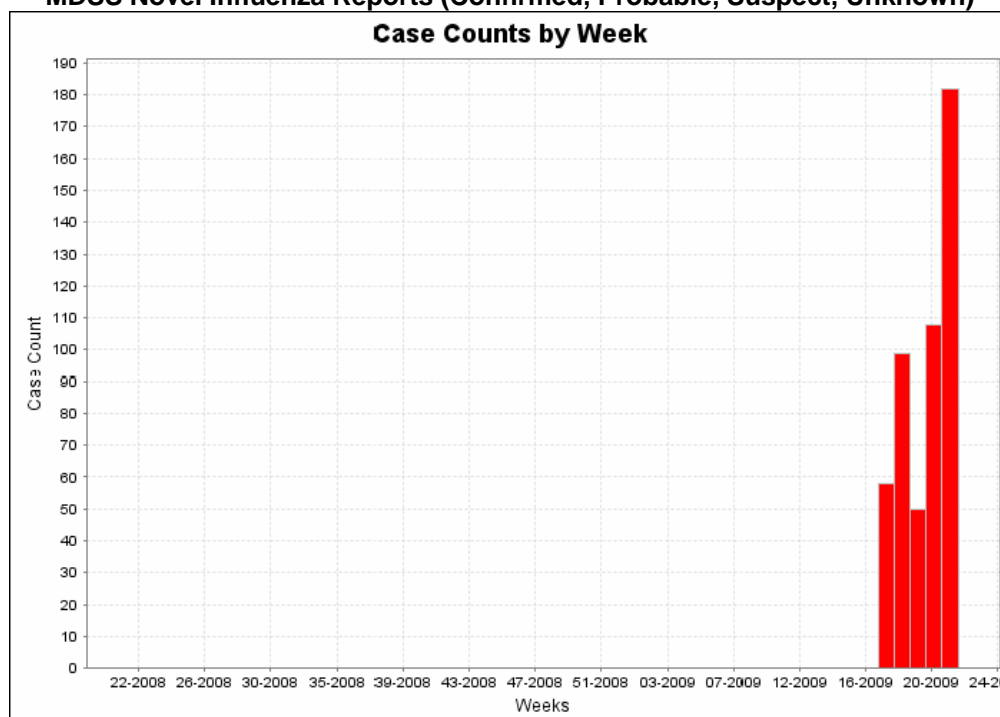
Michigan Disease Surveillance System: The week ending May 30 saw aggregate flu-like numbers drop slightly, and individual influenza reports increase, over the previous week's numbers. Aggregate flu-like reports are comparable to last year's numbers whereas current individual influenza numbers are higher than those of last year, likely due to increased testing.

On the novel flu front, the week ending May 30 saw an increase in suspect, probable, and confirmed H1N1 cases reported to MDSS. As of June 2, Michigan has 298 confirmed cases of novel H1N1 influenza.

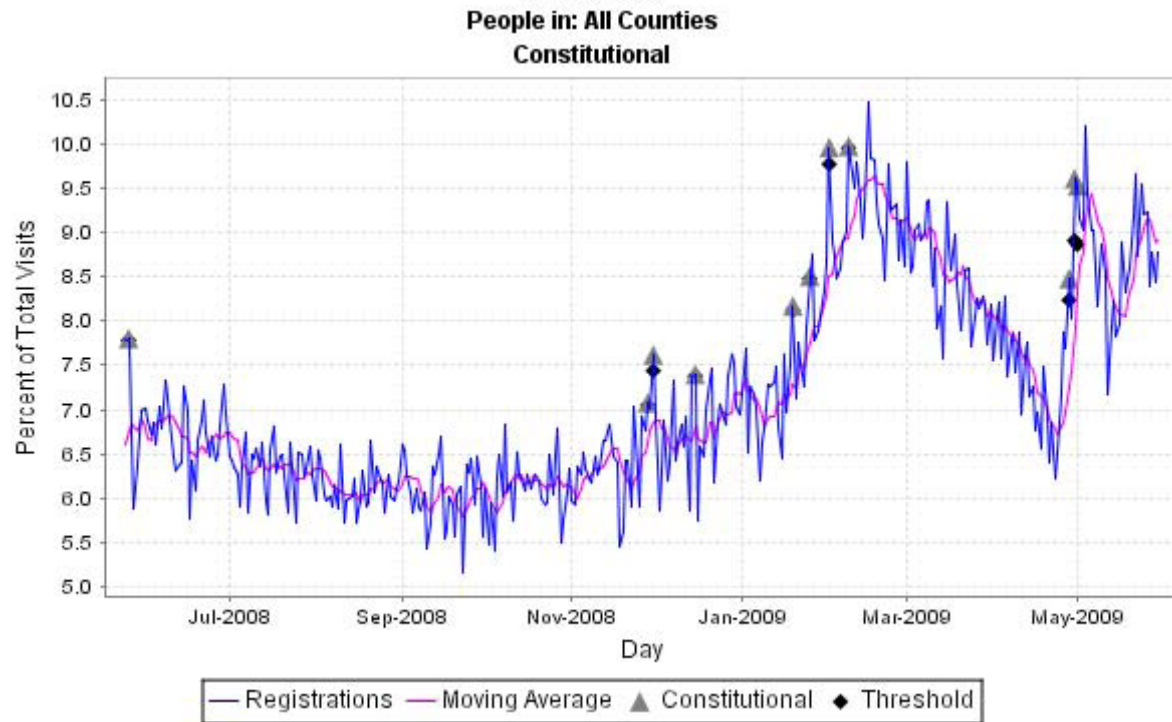
**MDSS Aggregate Flu-like Disease Reports (Confirmed, Probable, Suspect, Unknown)
Case Counts by Week**



**MDSS Novel Influenza Reports (Confirmed, Probable, Suspect, Unknown)
Case Counts by Week**

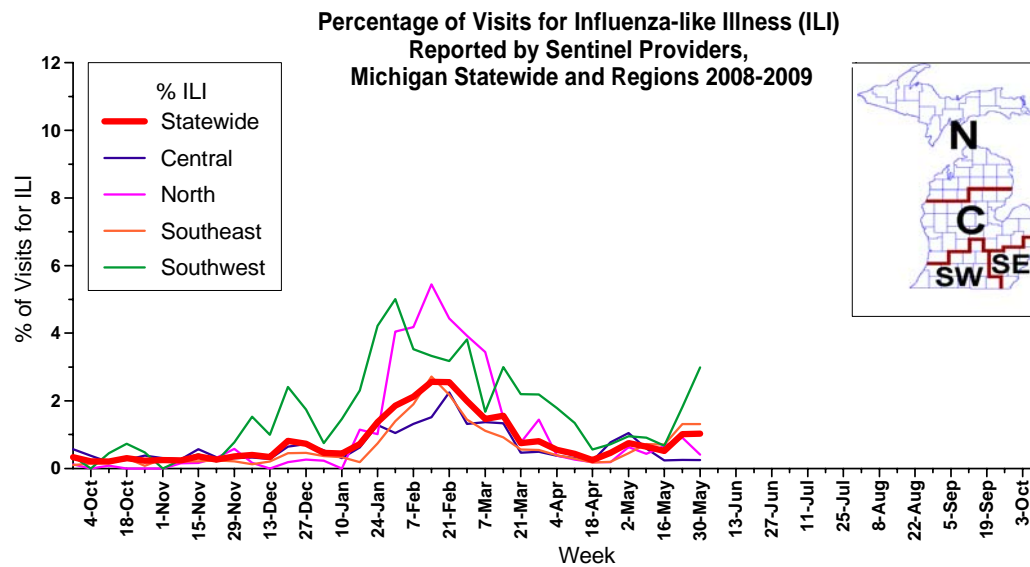


Emergency Department Surveillance: Emergency department visits from constitutional complaints have leveled off, while respiratory complaints decreased from the previous week's levels. Respiratory numbers are comparable to numbers seen at this time last year, while constitutional numbers are considerably higher. Three constitutional alerts in the N(2) and SW(1) Influenza Surveillance Regions and six respiratory alert in the N(2) and C(4) Influenza Surveillance Regions were generated last week. The large increase in these ED visits is most likely due to patients, presenting with a range of mild to moderate respiratory symptoms including fever, who may be aware of the novel H1N1 virus that is circulating.



Over-the-Counter Product Surveillance: Overall, OTC product sales were mixed last week. Children's electrolytes and chest rub sales were slightly higher whereas the remainder of the indicators were similar to last week's levels. Indicator levels are comparable to those seen at this time last year, except for thermometer sales, which are slightly higher.

Sentinel Provider Surveillance (as of May 30): During the week ending May 30, 2009, the proportion of visits due to influenza-like illness (ILI) remained the same as the previous week at 1.0% overall; 70 patient visits due to ILI were reported out of 6,850 office visits. Thirty-two sentinel sites provided data for this report. The increased level of ILI activity may be an indication of novel influenza A (H1N1) circulation, or this finding may also be due to an increase in the number of patients seeking care for ILI. Activity increased in one surveillance region: Southwest (3.0%); remained the same in the Southeast (1.3%) region; and decreased in the remaining regions: Central (0.2%) and North (0.4%). Note that these rates may change as additional reports are received.



As part of pandemic influenza preparedness, 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 4): During the past week, no new seasonal influenza isolates were identified at the MDCH Bureau of Laboratories (BOL). For the 2008-2009 influenza season, MDCH BOL has identified 314 seasonal influenza isolates (followed by Influenza Surveillance Regions of origin):

- 186 A/H1N1 or A/H1 (62SE, 43SW, 25C, 56N)
- 9 A/H3N2 or A/H3 (4SE, 2SW, 1C, 2N)
- 119 B (24SE, 45SW, 14C, 36N)
 - 9 B/Florida/4/2006-like (4SE, 1SW, 1C, 3N)
 - 108 B/Malaysia/2506/2004-like (20SE, 43SW, 12C, 33N)
 - 1 untypable (SW)
 - 1 pending subtyping (C)

Michigan Seasonal Influenza Antigenic Characterization (as of June 5): At this time, 24 influenza seasonal A/H1N1 isolates have been antigenically characterized by the CDC; results indicate all seasonal isolates are A/Brisbane/59/2007-like, which matches the influenza A/H1N1 component of this season's Northern Hemisphere vaccine. One influenza A/H3N2 has been characterized as A/Brisbane/10/2007-like, which matches the A/H3N2 component of this season's vaccine.

At this time, 3 influenza B isolates have been antigenically characterized by the CDC. One influenza B isolate has been characterized as B/Florida/4/2006-like, which matches the influenza B component of this season's vaccine. Two influenza B isolates have been characterized as B/Brisbane/60/2008-like, which does not match this season's vaccine, but is a recommended component of the 2009-2010 vaccine.

Michigan Seasonal Influenza Antiviral Resistance Data (as of June 4): 24 influenza seasonal A/H1N1 viruses from the MDCH Bureau of Laboratories have been tested for antiviral resistance at CDC for the 2008-2009 season. All 24 viruses were resistant to oseltamivir (Tamiflu®) and sensitive to zanamivir, amantadine and rimantadine. These viruses were collected in the SE(11), SW(12) and N(1) Influenza Surveillance Regions. One influenza A/H3N2, collected in the C Region, has been tested for antiviral resistance; that virus was resistant to the adamantanes (amantadine and rimantadine) and sensitive to oseltamivir and zanamivir. Two influenza B isolates, collected in the SW Region, have been tested for antiviral resistance; these viruses were sensitive to oseltamivir and zanamivir (the adamantanes are not effective against B viruses).

Antiviral resistance testing often takes several weeks to complete, and thus cannot be used to guide treatment of individual patients. However, CDC has made interim recommendations regarding the use of antiviral medications for the treatment of influenza and for prophylaxis. This guidance is available at <http://www2a.cdc.gov/HAN/ArchiveSys/ViewMsgV.asp?AlertNum=00279>.

For information about antiviral susceptibility for swine-origin influenza A (H1N1), go to <http://www.cdc.gov/h1n1flu/antiviral.htm>.

Seasonal Influenza-Associated Pediatric Mortality (as of June 5): Three influenza-associated pediatric mortalities (1 influenza A (SW), 2 influenza B (SE)) have been reported to MDCH for the 2008-2009 influenza season.

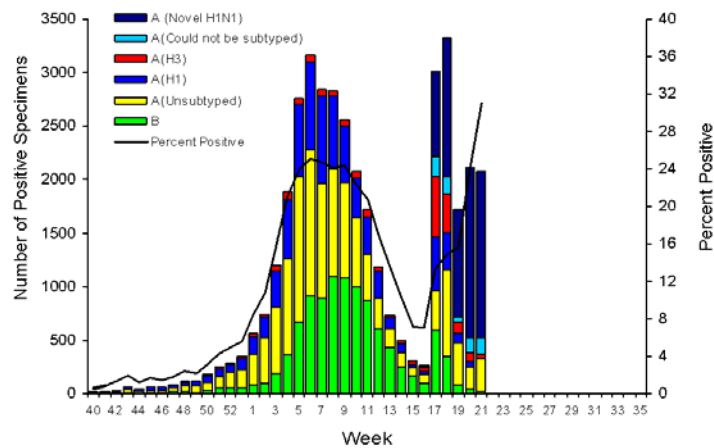
***The CDC has asked all states to collect information on any pediatric death associated with influenza infection. This includes not only any death in a child (<18 years) resulting from a compatible illness confirmed to be influenza by an appropriate diagnostic test, but also any unexplained death with evidence of an infectious process in a child. Please immediately call MDCH to ensure that proper clinical specimens are obtained. View the complete MDCH protocol online at http://www.michigan.gov/documents/mdch/ME_pediatric_influenza_guidance_v2_214270_7.pdf.

Seasonal Influenza Congregate Settings Outbreaks (as of June 5): Three congregated setting outbreaks (1C, 2N) due to seasonal influenza (1 influenza A, 1 influenza B, 1 unsubtype) have been reported to MDCH for the 2008-09 influenza season.

National (CDC [edited], May 30): During week 21 (May 24 - 30, 2009), influenza activity decreased in the United States, however, there are still higher levels of influenza-like illness than is normal for this time of year. Two thousand seventy-four (31.1%) specimens tested by U.S. World Health Organization (WHO) and National Respiratory and Enteric Virus Surveillance System (NREVSS) collaborating laboratories and reported to CDC/Influenza Division were positive for influenza. The proportion of deaths attributed to pneumonia and influenza (P&I) was below the epidemic threshold. Five influenza-associated pediatric deaths were reported. The proportion of outpatient visits for influenza-like illness (ILI) was below the national baseline. Three of the 10 surveillance regions reported ILI at or above their region-specific baseline. Five states reported geographically widespread influenza activity, 10 states reported regional influenza activity, the District of Columbia and 14 states reported local influenza activity, and 21 states reported sporadic influenza activity..

During week 21, seasonal influenza A (H1), A (H3), and B viruses continue to co-circulate at low levels with novel influenza A (H1N1). Approximately 82% of all influenza viruses being reported to CDC this week are novel influenza A (H1N1) viruses. The increase in the percentage of specimens testing positive for influenza by WHO and NREVSS collaborating laboratories may be due in part to changes in testing practices by health care providers, triaging of specimens by public health laboratories, an increase in the number of specimens collected from outbreaks, and other factors.

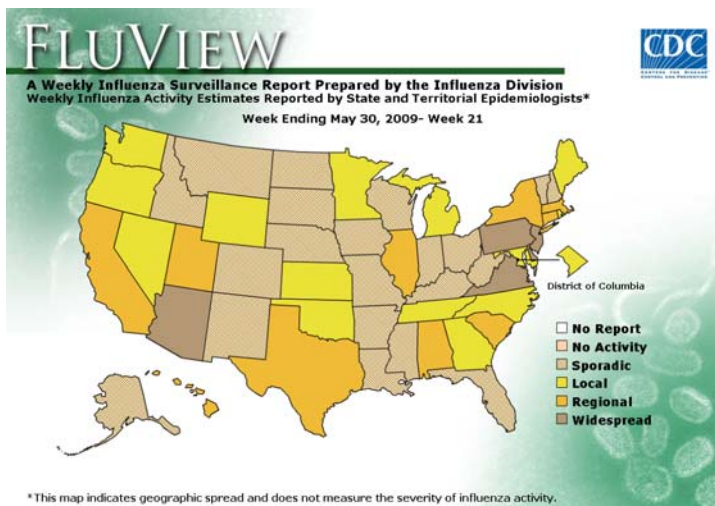
Influenza Positive Tests Reported to CDC by U.S. WHO/NREVSS Collaborating Laboratories, National Summary, 2008-09



Since October 1, 2008, 930 seasonal influenza A (H1N1), 172 influenza A (H3N2), and 491 influenza B viruses have been tested for resistance to the neuraminidase inhibitors (oseltamivir and zanamivir). Nine hundred fifty-eight seasonal influenza A (H1N1) and 166 influenza A (H3N2) viruses have been tested for resistance to the adamantanes (amantadine and rimantadine). One hundred fifty-six novel influenza A (H1N1) viruses have been tested for resistance to the neuraminidase inhibitors (oseltamivir and zanamivir). One hundred twenty-five novel influenza A (H1N1) viruses have been tested for resistance to the adamantanes (amantadine and rimantadine). The results of antiviral resistance testing performed on these viruses are summarized in the table below.

	Isolates tested (n)	Resistant Viruses, Number (%)		Isolates tested (n)	Resistant Viruses, Number (%)
		Oseltamivir	Zanamivir		
Seasonal Influenza A (H1N1)	930	925 (99.5%)	0 (0)	958	5 (0.5%)
Influenza A (H3N2)	172	0 (0)	0 (0)	166	166 (100%)
Influenza B	491	0 (0)	0 (0)	N/A*	N/A*
Novel Influenza A (H1N1)	156	0 (0)	0 (0)	125	125 (100%)

*The adamantanes (amantadine and rimantadine) are not effective against influenza B viruses.



*This map indicates geographic spread and does not measure the severity of influenza activity.

To access the entire CDC weekly surveillance report throughout the influenza season, visit <http://www.cdc.gov/flu/weekly/fluactivity.htm>

International (WHO, May 28): *This summary provides an updated report of seasonal influenza activity for weeks 19-20 of 2009. It does not include reports of avian influenza in humans, which are available at: [the WHO avian influenza page](#). or reports of the recent influenza A (H1N1) virus which has recently emerged, which are available at: [the WHO page for influenza A\(H1N1\)](#).*

During the weeks 19-20, influenza seasonal activity continued to increase in the southern hemisphere with more countries reporting low levels of activity. New Zealand (H1,H3) and South Africa (H3,B) reported local levels of activity. In the northern hemisphere, seasonal influenza was at or below baseline levels in most countries. Local activity was still reported in some areas in Canada (H1,H3,B) and the different states in the United States of America reported varying levels of activity (H1,H3,B).

Sporadic influenza activity was observed in Albania (B), Argentina (A), Australia (H1,H3,B), Brazil (H1,H3,B), China (H1,H3,B), Denmark (H1,B), Estonia (H3,B), Georgia (B), Iran (B), Israel (H1,H3), Japan (H1,H3,B), Kazakhstan (A), Kenya (H1), Latvia (H3,B), Luxembourg (H3), Madagascar (B), Poland (H1), Portugal (B), Russian Federation (A,B), Sweden (A,B),Ukraine (B), United Kingdom (H1,H3,B) and Uruguay (A).

Belarus, Bulgaria, Cameroon, Croatia, Greece, Finland, France, Germany, Hungary, Italy, Kyrgyzstan, Lithuania, Mongolia, Netherlands, Oman, Romania, Serbia, Slovakia, Slovenia, Spain, Sri Lanka and Switzerland reported no activity.

MDCH reported **LOCAL INFLUENZA ACTIVITY** to the CDC for the week ending May 30, 2009.

For stakeholders interested in additional information regarding influenza vaccination and education, the MDCH publication *Michigan FluBytes* is available online at http://www.michigan.gov/mdch/0,1607,7-132-2940_2955_22779_40563-125027--,00.html. *FluBytes* is published weekly during the influenza season.

Avian and Novel Influenza Activity

WHO Pandemic Phase: Phase 5 - characterized by human-to-human spread of the virus into at least two countries in one WHO region. While most countries will not be affected at this stage, the declaration of Phase 5 is a strong signal that a pandemic is imminent and that the time to finalize the organization, communication, and implementation of the planned mitigation measures is short.

International, Human (WHO, June 2): The Ministry of Health of Egypt has reported a new confirmed human case of avian influenza A/H5N1 on 01 June 2009.

The case is a 4-year old female child from the Kefr El Sheikh District of Kefr El Sheikh Governorate. Her symptoms started on 30 May 2009 with fever, cough and sore throat. She was admitted to Kefr El Sheikh Fever Hospital on 31 May 2009. The patient received oseltamivir and is in a stable condition.

Investigations into the source of infection indicated that she had close contact with dead and sick poultry. The case was confirmed by the Egyptian Central Public Health Laboratories.

Of the 78 cases confirmed to date in Egypt, 27 have been fatal.

International, Human (WHO, June 1): The Ministry of Health of Egypt has reported a new confirmed human case of avian influenza.

The case is a 14-month old girl from Dekernes District, Dkhalia Governorate. Her symptoms began on 25 May 2009. She was admitted to Mansoura Chest Hospital on 29 May where she received oseltamivir and is in a stable condition.

Investigations into the source of infection indicated that she had close contact with dead and sick poultry. The case was confirmed by the Egyptian Central Public Health Laboratories.

Of the 77 cases confirmed to date in Egypt, 27 have been fatal.

Michigan Wild Bird Surveillance (USDA, as of May 28): For the 2009 testing season, no Michigan samples have been taken so far. HPAI subtype H5N1 has not been recovered from any Michigan samples tested to date, or from the 250 birds or environmental samples tested nationwide for the 2009 testing season, which will run from April 1, 2009 - March 31, 2010. For more information, visit the National HPAI Early Detection Data System website at <http://wildlifedisease.nbio.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>.

Please contact Susan Vagasky at VagaskyS@Michigan.gov with any questions regarding this newsletter or to be added to the weekly electronic mailing list.

Contributors

MDCH Bureau of Epidemiology - Sally Bidol, MPH; Cristi Carlton, MPH; Edward Hartwick, MS

MDCH Bureau of Laboratories – Patricia Clark, MPH

Table 1. H5N1 Influenza in Poultry (Outbreaks up to May 25, 2009)

(Source: http://www.oie.int/downld/AVIAN%20INFLUENZA/A_AI-Asia.htm Downloaded 5/27/09)

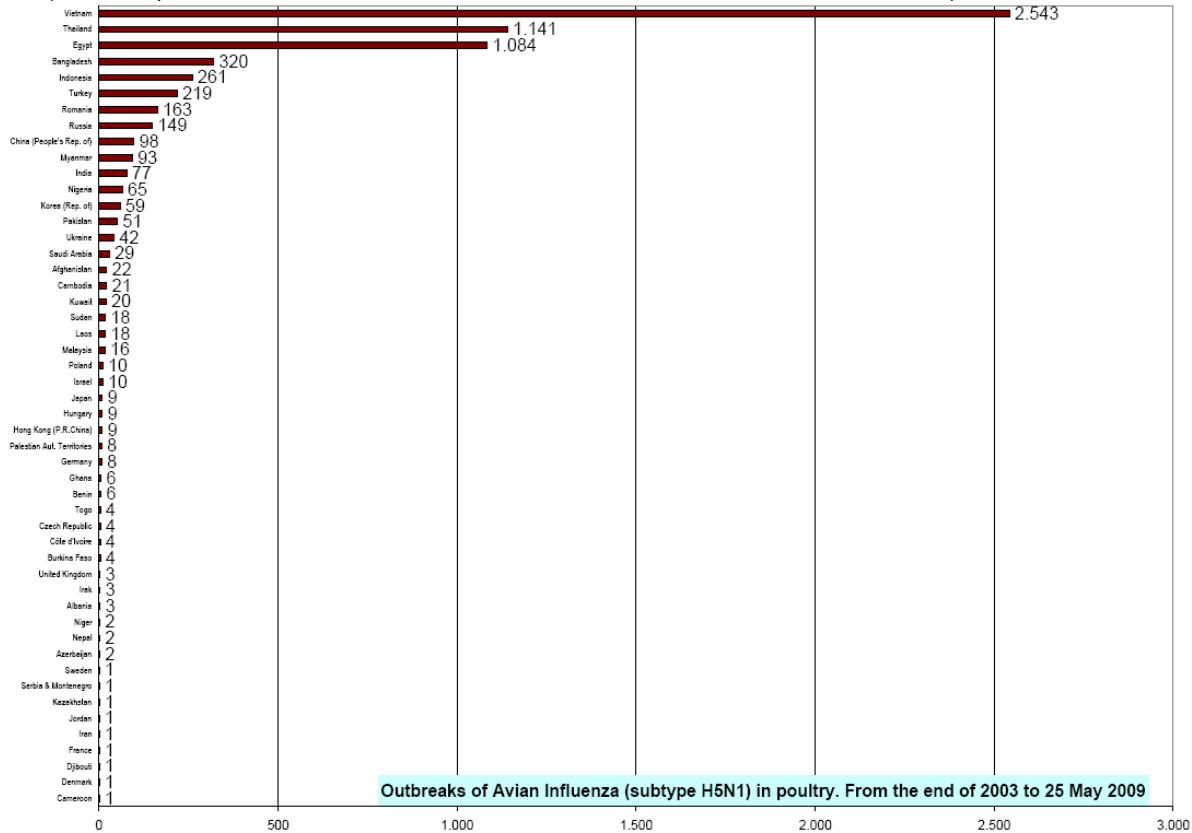


Table 2. H5N1 Influenza in Humans (Cases up to June 2, 2009)

(http://www.who.int/csr/disease/avian_influenza/country/cases_table_2009_05_28/en/index.html Downloaded 6/2/2009)

Cumulative number of lab-confirmed human cases reported to WHO. Total number of cases includes deaths.

Country	2003		2004		2005		2006		2007		2008		2009		Total	
	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	8	5
Bangladesh	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
Cambodia	0	0	0	0	4	4	2	2	1	1	1	0	0	0	8	7
China	1	1	0	0	8	5	13	8	5	3	4	4	7	4	38	25
Djibouti	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
Egypt	0	0	0	0	0	0	18	10	25	9	8	4	27	4	78	27
Indonesia	0	0	0	0	20	13	55	45	42	37	24	20	0	0	141	115
Iraq	0	0	0	0	0	0	3	2	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	2	2
Myanmar	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0
Nigeria	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1
Pakistan	0	0	0	0	0	0	0	0	3	1	0	0	0	0	3	1
Thailand	0	0	17	12	5	2	3	3	0	0	0	0	0	0	25	17
Turkey	0	0	0	0	0	0	12	4	0	0	0	0	0	0	12	4
Viet Nam	3	3	29	20	61	19	0	0	8	5	6	5	4	4	111	56
Total	4	4	46	32	98	43	115	79	88	59	44	33	38	12	433	262