



MI FluFocus

Influenza Surveillance and Avian Influenza Update

Bureau of Epidemiology
Bureau of Laboratories

Michigan Department
of Community Health



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New updates in this issue:

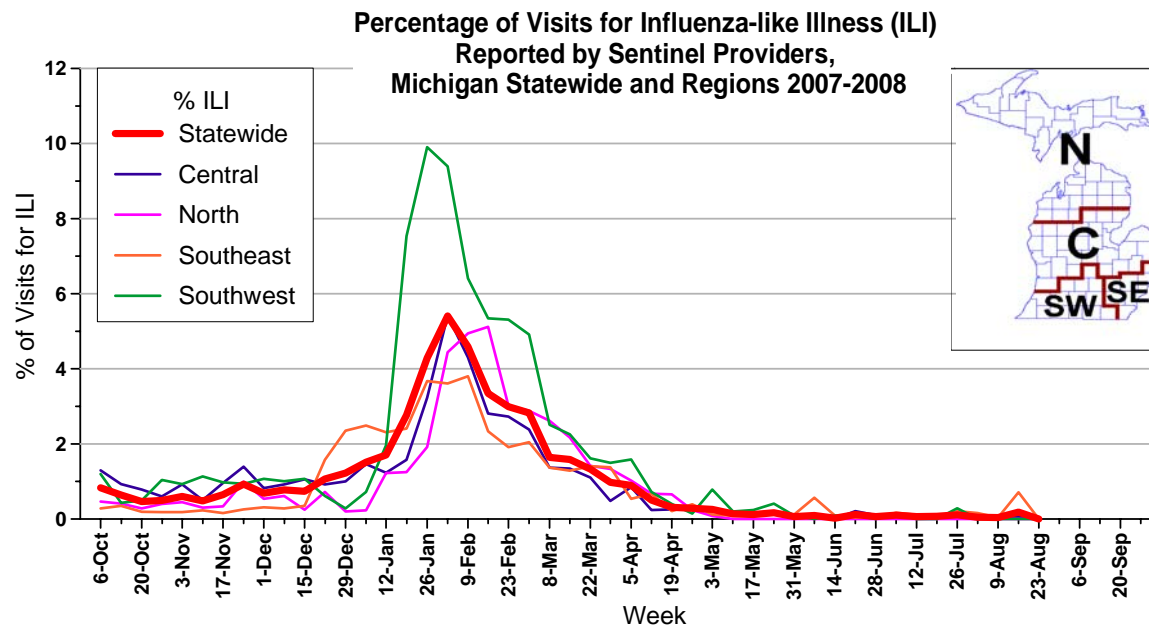
- **International:** High levels of Tamiflu-resistant H1N1 influenza reported in the Southern Hemisphere.
- **Avian Influenza:** Benin reports new H5N1 poultry infections; H7N3 in swans in Rhode Island.

Michigan Disease Surveillance System: The week ending August 23 saw both aggregate flu-like disease and individual influenza reports remain steady near last week's levels. Both aggregate flu-like illness and individual influenza reports are expected to fluctuate near baseline levels until the fall.

Emergency Department Surveillance: Emergency department visits from both constitutional and respiratory complaints remained steady near last week's levels. Both constitutional and respiratory complaints are consistent with numbers seen this time last year. Eight constitutional alerts in the C(3), N(3), SE(1) and SW(1) Influenza Surveillance Regions and six respiratory alerts in the C(3), N(1), SE(1) and SW(1) Influenza Surveillance Regions, including one statewide alert, were generated last week.

Over-the-Counter Product Surveillance: Overall, OTC product sales were mixed last week. Chest rubs showed a slight drop in sales, thermometers held near last week's levels, and the remainder saw a slight increase. Indicator levels are comparable to those seen at this time last year.

Sentinel Surveillance (as of August 28): During the week ending August 23, 2008, 0.0% of all office visits reported by Michigan influenza sentinel sites were due to influenza-like illness (ILI). This represents 0 cases out of 3255 total patients seen. Seventeen practices provided data for this report. 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 Rachel Potter at 517-335-9710 or potterr1@michigan.gov for more information.

Laboratory Surveillance (as of August 28): For the 2007-2008 influenza season, the MDCH Bureau of Laboratories has identified 249 influenza isolates:

- 190 A/H3N2: Central (58); Southwest (51); Southeast (49); North (32)
- 4 A/H1N1: Southeast (2); North (2)
- 2 A subtyping unable to be performed: Southeast (2)
- 53 B: Southeast (30); North (10); Southwest (6); Central (6); Indiana (1). 51 have been typed as B/Shanghai/361/2002-like and 2 were B/Malaysia/2506/2004-like (SE).

***As a reminder, the positive predictive value of influenza rapid tests decreases during times of low influenza prevalence. MDCH suggests that during periods of low influenza activity in your community, all positive rapid tests results be confirmed by sending in a specimen for viral culture; this can be arranged through your local health department.

Influenza-Associated Pediatric Mortality (as of August 28): For the 2007-2008 season, MDCH has confirmed one influenza-related pediatric mortality in Michigan. The case was a 13 year-old from the Central region with an influenza A/H3N2 and MRSA co-infection; disease onset was in late February.

***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. See www.michigan.gov/documents/fluletter_107562_7.pdf for the complete protocol. Please immediately call MDCH to ensure that proper clinical specimens are obtained.

Congregate Settings Outbreaks (as of August 28): Congregate setting outbreaks have been reported in all regions of the state, peaking in the first two weeks of February. Seven outbreaks have been culture-confirmed at MDCH; six as influenza A/H3N2 and one as influenza B for the 2007-2008 season.

Michigan Influenza Season Summary: The 2007-2008 Michigan Influenza Season Summary is now available online at www.michigan.gov/influenza. Overall, this influenza season was moderate in activity with peak activity occurring in early February and was dominated by influenza A/H3N2.

National (CDC): To access the entire CDC weekly surveillance report throughout the influenza season, visit <http://www.cdc.gov/flu/weekly/fluactivity.htm>. The 2007-2008 national influenza season summary is available at http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5725a5.htm?s_cid=mm5725a5_e.

International, Antiviral Resistance (New Zealand Press Association, August 25): Tamiflu [oseltamivir] resistant forms of the "ordinary" seasonal influenza are rapidly spreading and the drug may be ineffective in fighting the dominant flu strain in South Africa this winter [2008-2009]. World Health Organisation (WHO) data show tests on 107 people in South Africa with the H1N1 strain, one of the 3 most common flu viruses in humans, found all had a mutant [virus] resistant to Tamiflu. Only one patient was taking Tamiflu at the time.

Tests on 788 samples taken from H1N1 flu patients in 12 countries, mostly in the southern hemisphere, from 1 Apr to 20 Aug 2008 found that 242, or 31 percent, had the H274Y mutation [in the neuraminidase protein gene] associated with Tamiflu resistance, the WHO said. Southern hemisphere incidence of the mutation in tests on the H1N1 virus ranged from 100 percent in South Africa to 13 percent in Chile, compared with a resistance rate of 16 percent found in 7528 samples tested from the last quarter of 2007 to [31 Mar 2008] in 34 countries, mostly in the northern hemisphere.

"What we're seeing is the [spread] of the resistance gene and the distribution of it throughout the world," said Lance Jennings, a clinical virologist with the Canterbury District Health Board [New Zealand], who is chairman of the Asia-Pacific Advisory Committee on Influenza. "We have a lot to learn about the molecular epidemiology of influenza viruses." The Tamiflu-resistant form of flu has been reported in 40 countries in Europe, North and South America, Africa, Asia, and Australia since widespread resistance to the [drug] was first reported to the WHO by Norway in January [2007].

Until bird flu vaccines are developed for the specific pandemic influenza virus once it evolves and starts spreading, work likely to take 3 months or more, Tamiflu and another retroviral treatment, Relenza, are the main medical weapons to battle pandemic flu. Tamiflu is being stockpiled by the WHO and governments around the world for use in the event of a pandemic, and to treat the H5N1 avian flu strain that has infected humans in 15 of the 60 countries to which it has spread.

Last year [2007], Swedish researchers warned that sewage systems do not break down Tamiflu, and that the drug was being discharged in rivers and streams used by the waterfowl thought to be the main carriers of avian flu. They urged doctors not to over-prescribe Tamiflu to avoid creating resistance in avian flu carried by ducks. If those viruses combined with other viruses that made humans sick they could mutate into strains resistant to Tamiflu, they said early in 2007.

Health Minister David Cunliffe said this year [2008] that 103 of the 1229 treatment courses of Tamiflu the Government had bought at a cost of [USD] 300 000 had reached their expiry dates.

International (WHO, August 14): During weeks 30–32, the level of overall influenza activity in the world increased. In the southern hemisphere, increase in both influenza activity and detection of influenza viruses was observed. Influenza A (H1), A(H3) and Influenza B circulated. Widespread outbreaks were reported in New Zealand. Countries in the northern hemisphere reported sporadic or no activity.

China, Hong Kong Special Administrative Region. Increase in influenza activity continued, with circulation of both A (H3) and A (H1) viruses. Regarding influenza B viruses detected, B/Yamagata lineage predominated over B/Victoria lineage.

New Zealand. Widespread influenza activity was reported, with influenza A (H3) and influenza B viruses circulating.

Between weeks 30 to 32, sporadic influenza activity was detected in Argentina A (H1), Brazil (A,B), Canada, Chile (A, B), the Islamic Republic of Iran A (H3), Poland (A) Uruguay (A ,B)

Madagascar reported sporadic influenza activity, but no influenza cases were laboratory confirmed

Belgium, Cameroon, Germany, Norway, Portugal, and Slovenia reported no influenza activity.

Seasonal influenza reporting to the CDC has ended for the 2007-2008 influenza season.

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 biweekly during the summer months.

End of Seasonal Report

Avian Influenza Activity

WHO Pandemic Phase: Phase 3 - Human infection(s) with a new subtype, but no human-to-human spread or rare instances of spread to a close contact.

International, Poultry (CIDRAP, August 27): Agriculture officials in Benin recently reported that two chickens at a live poultry market tested positive for the H5N1 avian influenza virus, the country's first outbreak since the virus was detected there at the end of 2007.

Authorities found the virus during routine surveillance at a market in Lokossa, the capital of Mono department, located in the southern part of the country near the coast, according to an Aug 25 report from the World Organization for Animal Health (OIE).

Testing performed at Benin's national laboratory in Parakou revealed H5 highly pathogenic avian influenza, according to the report. The surveillance activity at the Lokossa market was also a training exercise for the lab's managers and officials, the OIE report said. In December 2007, when the country confirmed its first H5N1 outbreak, the samples were tested at an Italian lab.

Animal health officials have not determined the source of the outbreak, according to the report. Authorities disinfected market stalls and have restricted the movement of poultry within the country.

Outbreaks in 2007 affected two farms, also located near Benin's southern coastal area, according to previous reports. Several countries surrounding Benin have reported poultry outbreaks over the past few years, including Nigeria, Togo, Niger, and Burkina Faso.

National, Wild Birds (WPRI.com, August 21): A strain of bird flu [Ed. Note: H7N3] has been detected in 4 swans found in the Seekonk River.

The cases were discovered as part of routine surveillance by the Rhode Island Department of Environmental Management (DEM).

DEM says the strain of avian flu detected in Rhode Island is not the same strain that has infected people in Asia and Europe since 2003, so it does not pose a significant health risk to humans.

However, the agency says the virus can be transmitted to wild birds and domestic poultry flocks. It is urging all poultry owners to employ standard biosecurity and sanitation practices. In particular, they should prevent flocks from having any contact with wild birds.

All poultry owners should have their flocks tested. To schedule an appointment, call the DEM's Division of Agriculture/Animal Health Unit at 401-222-2781. There is no charge for the testing.

Michigan Wild Bird Surveillance (USDA, as of August 28): For the 2008 testing season, 616 Michigan samples have been taken so far, comprised of 238 live birds, 339 hunter-killed birds, 14 morbidity/mortality samples and 25 environmental samples.

H5N1 subtype H5N1 has not been recovered from any Michigan samples tested to date, or from the 16,878 birds or environmental samples tested nationwide for the 2008 testing season, which will run from April 1, 2008 - March 31, 2009. 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.

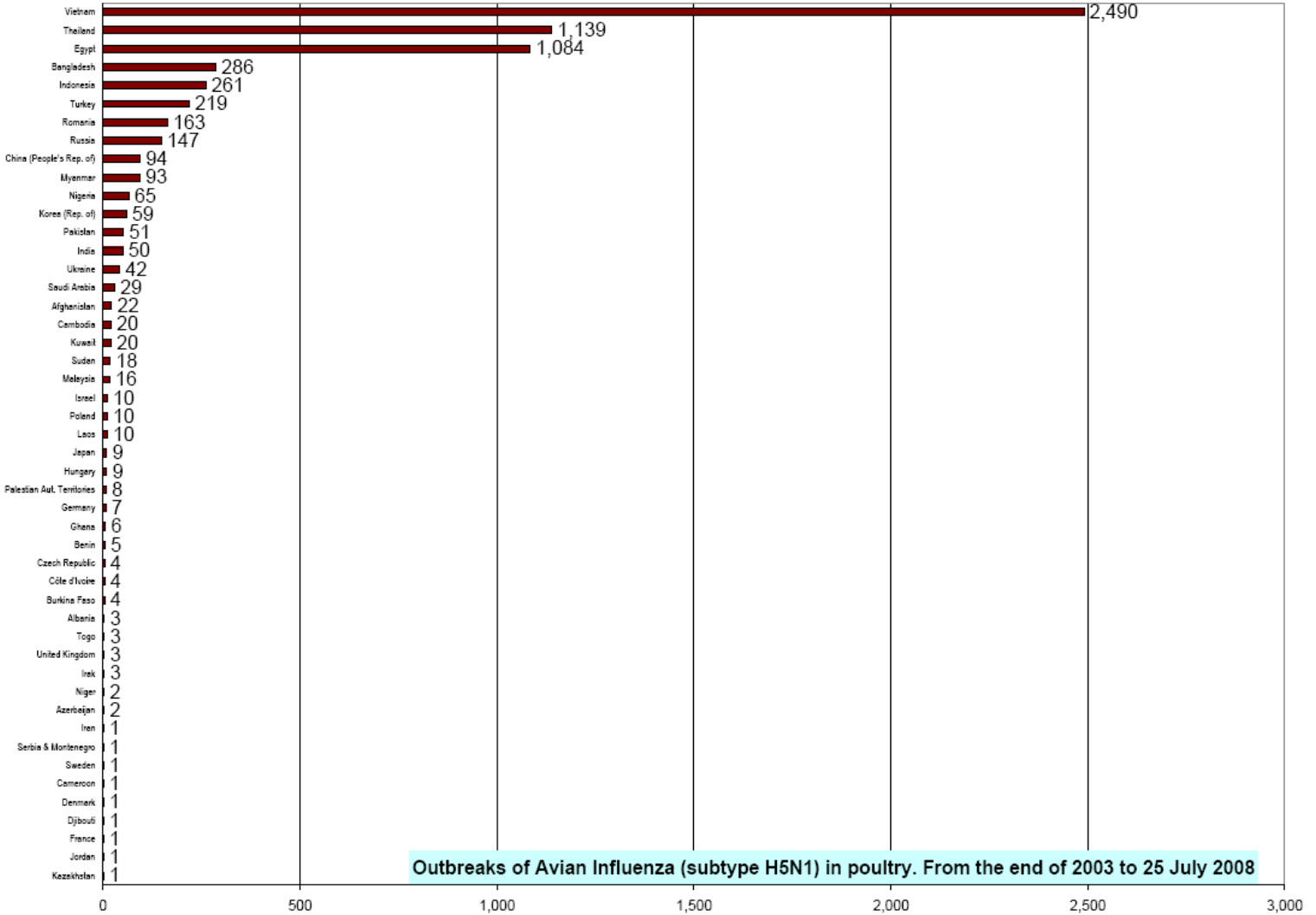
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Table 1. H5N1 Influenza in Poultry (Outbreaks up to July 25, 2008)

(Source: http://www.oie.int/downld/AVIAN%20INFLUENZA/A_AI-Asia.htm Downloaded 7/29/08)



Outbreaks of Avian Influenza (subtype H5N1) in poultry. From the end of 2003 to 25 July 2008

Table 2. H5N1 Influenza in Humans (Cases up to June 19, 2008)

(http://www.who.int/csr/disease/avian_influenza/country/cases_table_2008_06_19/en/index.html Downloaded 6/19/2008)

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

Country	2003		2004		2005		2006		2007		2008		Total	
	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	8	5
Bangladesh	0	0	0	0	0	0	0	0	0	0	1	0	1	0
Cambodia	0	0	0	0	4	4	2	2	1	1	0	0	7	7
China	1	1	0	0	8	5	13	8	5	3	3	3	30	20
Djibouti	0	0	0	0	0	0	1	0	0	0	0	0	1	0
Egypt	0	0	0	0	0	0	18	10	25	9	7	3	50	22
Indonesia	0	0	0	0	20	13	55	45	42	37	18	15	135	110
Iraq	0	0	0	0	0	0	3	2	0	0	0	0	3	2
Lao PDR	0	0	0	0	0	0	0	0	2	2	0	0	2	2
Myanmar	0	0	0	0	0	0	0	0	1	0	0	0	1	0
Nigeria	0	0	0	0	0	0	0	0	1	1	0	0	1	1
Pakistan	0	0	0	0	0	0	0	0	3	1	0	0	3	1
Thailand	0	0	17	12	5	2	3	3	0	0	0	0	25	17
Turkey	0	0	0	0	0	0	12	4	0	0	0	0	12	4
Viet Nam	3	3	29	20	61	19	0	0	8	5	5	5	106	52
Total	4	4	46	32	98	43	115	79	88	59	34	26	385	243