



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:

- **Michigan Surveillance:** All surveillance systems continue to show low levels of activity.
- **National Surveillance:** Influenza activity is low; seven states and Puerto Rico report sporadic activity.
- **Avian Influenza:** H5N1 detected in a poultry farm in Bangladesh and a wild crow in Hong Kong.

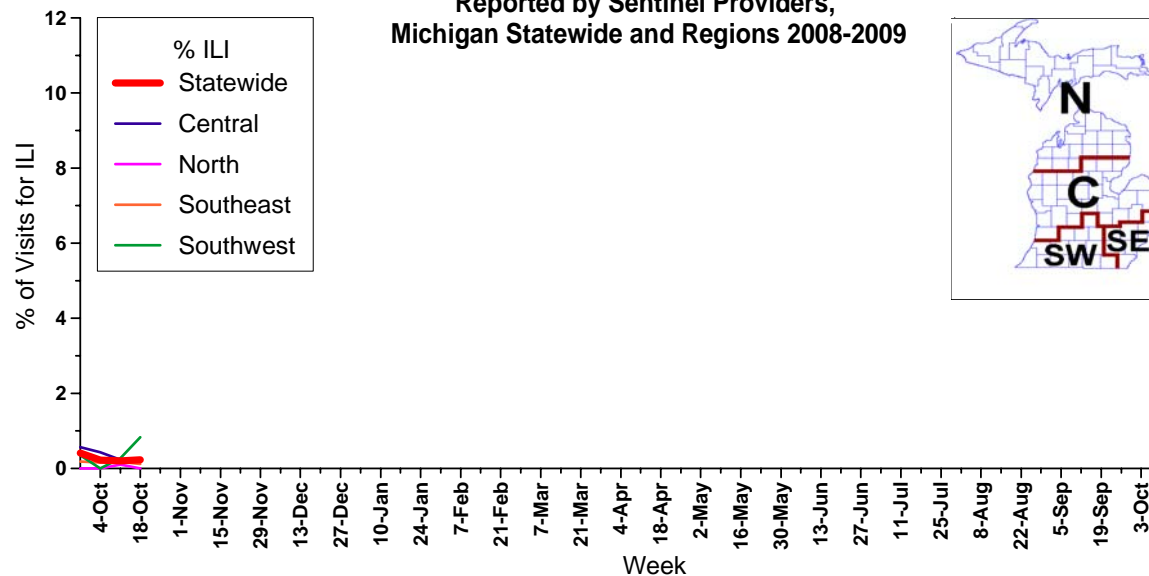
Michigan Disease Surveillance System: The week ending October 18 saw both individual influenza and aggregate flu-like disease reports remain steady near last week's levels. Both aggregate and individual reports are consistent with levels seen at this time last year.

Emergency Department Surveillance: Emergency department visits from both respiratory and constitutional complaints remained steady near last week's levels. Respiratory complaints are consistent with numbers seen this time last year, while constitutional complaints are slightly lower. Eight constitutional alerts in the C(2) and N(6) Influenza Surveillance Regions and eleven respiratory alerts in the C(5), N(4) and SW(2) Influenza Surveillance Regions were generated last week.

Over-the-Counter Product Surveillance: Overall, OTC product sales were steady overall last week. Only chest rubs saw a slight increase over the last week. Most indicators did show a sharp drop early in the week but then recovered to levels similar to previous week's. Indicator levels are comparable to those seen at this time last year, with chest rubs being slightly lower.

Sentinel Provider Surveillance (as of October 23, 2008): During the week ending October 18, 2008, the proportion of visits due to influenza-like illness (ILI) remained at a low level, 0.3%; 38 patient visits due to ILI were reported out of 11,179 office visits. A small increase in ILI was reported in the SW surveillance region. This level of ILI activity is consistent with that reported in early fall during prior years' surveillance. Thirty sentinels provided data for this report. Note that these rates may change as additional reports are received.

Percentage of Visits for Influenza-like Illness (ILI)
Reported by Sentinel Providers,
Michigan Statewide and Regions 2008-2009



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 October 23): No new influenza isolates were identified at the MDCH Bureau of Laboratories (BOL) during the past week. For the 2008-2009 influenza season, no influenza isolates have been identified at MDCH BOL.

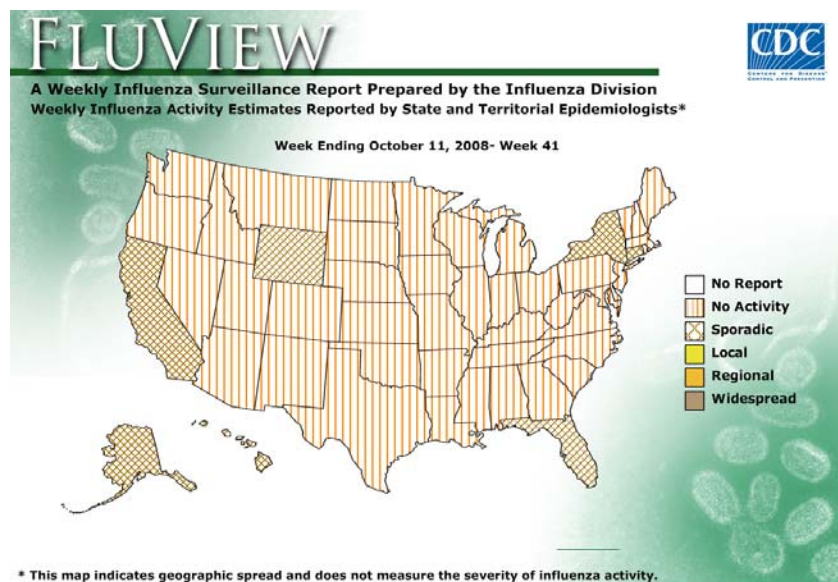
***As a reminder, the positive predictive value of influenza rapid tests decreases during times of low influenza prevalence. MDCH suggests that during periods of low influenza activity in your community, all positive rapid tests results be confirmed by sending in a specimen for viral culture; this can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

Influenza-Associated Pediatric Mortality (as of October 23): No influenza-associated pediatric mortalities 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.

Congregate Settings Outbreaks (as of October 23): No congregate setting outbreaks due to influenza have been reported to MDCH for the 2008-2009 influenza season.

National (CDC [edited], October 17): During week 41 (October 5-11, 2008), a low level of influenza activity was reported in the United States. Seven (0.5%) specimens tested by US 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. The proportion of outpatient visits for influenza-like illness (ILI) was below national and region-specific baseline levels. Seven states and Puerto Rico reported sporadic influenza activity; 43 states and the District of Columbia reported no influenza activity.



International (WHO, October 23): During the weeks 41-42, overall influenza activity in the southern hemisphere continued to decline. Activity was low in the rest of the world.

China, Hong Kong Special Administrative Region. A decline in the activity of influenza A(H3) and A(H1) viruses was observed, with influenza A(H3) predominating. Also, a B/Victoria lineage virus was detected.

Between weeks 41 to 42, sporadic influenza activity was detected in Chile (B), the Russian Federation (H1,H3,B) , the United Kingdom of Great Britain and Northern Ireland (H1, H3), and the United States of America (A,B).

Belgium, Brazil, Bulgaria, Canada, Denmark, France, Germany, Honduras, the Islamic Republic of Iran, Latvia, Mongolia, Norway, Poland, Portugal, Slovenia, South Africa, Spain, Sweden and Switzerland reported no influenza activity.

MDCH reported **NO INFLUENZA ACTIVITY** to the CDC for the week ending October 18, 2008.

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.

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 (OIE, October 17): In a report to OIE on October 17, Germany announced the detection of low pathogenic H5N3 avian influenza in one goose and three ducks in the Leipzig Zoo. The event started on October 2 and was confirmed on October 9. The affected animals were destroyed and other zoo animals have been vaccinated. In the same report, a different H5 outbreak was reported from a live poultry farm in Leipzig. All 106 animals on the farm have been destroyed. N typing is still pending for this outbreak.

International, Poultry (WorldPoultry.net, October 20): Authorities in Bangladesh have reportedly detected bird flu at a poultry farm, just 4 months after the virus was last reported in the country.

According to livestock department spokesman Salahuddin Khan, approx. 300 birds were culled in a farm in the northern Naogaon district after the deadly H5N1 strain of avian influenza was detected.

Farmers have been told to step up bio-security, and extra surveillance measures across the country have been taken, he said.

Khan said the virus was becoming dormant at the onset of the summer, but is now coming back ahead of the cold season.

Officials have further stated that this AI outbreak was a warning for the country's US \$1.5 bln poultry industry.

International, Wild Birds (Straits Times via Reuters, October 20): A HOUSE crow found dead in a crowded district in Hong Kong last week has tested positive for the highly pathogenic H5N1 bird flu virus, a government spokesman said on Monday.

The appearance of the virus in Hong Kong, more active in the cooler months between October and March, is closely watched as it may indicate the level of activity of the virus in mainland China, which has a poultry population of 13 billion.

The virus is endemic in poultry in parts of Asia but experts fear it will mutate into a form that is easily passed from human to human, sparking a pandemic which could kill millions of people.

'House crows are common in Hong Kong. We have no idea if it came from elsewhere, how it was infected,' the spokesman for the Agriculture, Fisheries and Conservation Department said.

The crow was found dead in a public refuse bin on Wednesday.

Since 2003, the virus has infected 387 people in 15 countries, killing 245, according to latest statistics from the World Health Organisation.

National, Research (Society of General Microbiology, October 19): A single vaccine could be used to protect chickens, cats and humans against deadly flu pandemics, according to an article published in the November issue of the *Journal of General Virology*. The vaccine protects birds and mammals against different flu strains and can even be given to birds while they are still in their eggs, allowing the mass vaccination of wild birds.

The emergence of bird flu has posed a major challenge to scientists designing vaccines as it can infect a number of different animals, including birds, pets and people. Now, researchers in the USA have discovered that a vaccine based on a bird flu virus could be used to protect several species against different influenza viruses.

"The world is experiencing a pandemic of influenza in birds caused by an H5N1 virus. Although it has been restricted to Eurasia and some countries in Africa, there is a risk that this virus may spread worldwide," said Professor Daniel Perez from the University of Maryland, USA. "The H5N1 virus also has an unusual expanded host range: not only birds and humans have been infected but also cats, which are usually resistant to influenza. To prepare for a pandemic, it would be ideal to have a vaccine that could be used in multiple animal species."

The researchers found that the central genes or 'backbone' of the H9N2 virus that infects guinea fowl can protect birds and mice against highly pathogenic strains of influenza. They modified the virus to make it less pathogenic and then used it to vaccinate mice. Three weeks after being vaccinated, the mice were infected with the potentially lethal H1N1 virus – the same virus that caused the 1918 Spanish flu pandemic. All the vaccinated mice survived with no signs of disease. Vaccinated mice also survived infection with the deadly H5N1 bird flu virus, again showing no signs of disease.

"Our results show that the H9N2 backbone vaccine can be used to protect mice against two different, highly pathogenic strains of influenza. We chose genes from H9N2 influenza for the vaccine because the virus can infect many different animals, including chickens, mice and pigs," said Professor Perez. "A very important limitation in the current design of flu vaccines is that they are usually species specific. Our approach involves a universal backbone that can be used in several different species, including humans."

More importantly, this live attenuated virus provided effective protection when it was administered to birds before they had hatched. By vaccinating eggs against influenza, we could protect wild bird species as well as domestic chickens against pandemic flu strains, limiting the spread of disease to humans.

"If an emerging strain of bird flu spreads among a broad range of animal species, we should expect major health, economic and ecological consequences," said Professor Perez. "It is unrealistic to consider preparing different vaccines specifically tailored to different animal species in this situation. An influenza vaccine that could protect different species would save valuable time during a pandemic."

Michigan Wild Bird Surveillance (USDA, as of October 23): For the 2008 testing season, 859 Michigan samples have been taken so far, comprised of 320 live birds, 339 hunter-killed birds, 25 morbidity or mortality samples and 175 environmental samples.

H5N1 has not been recovered from any Michigan samples tested to date, or from the 44,503 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 H5N1 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

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Table 1. H5N1 Influenza in Poultry (Outbreaks up to October 15, 2008)

(Source: http://www.oie.int/downld/AVIAN%20INFLUENZA/A_AI-Asia.htm Downloaded 10/16/08)

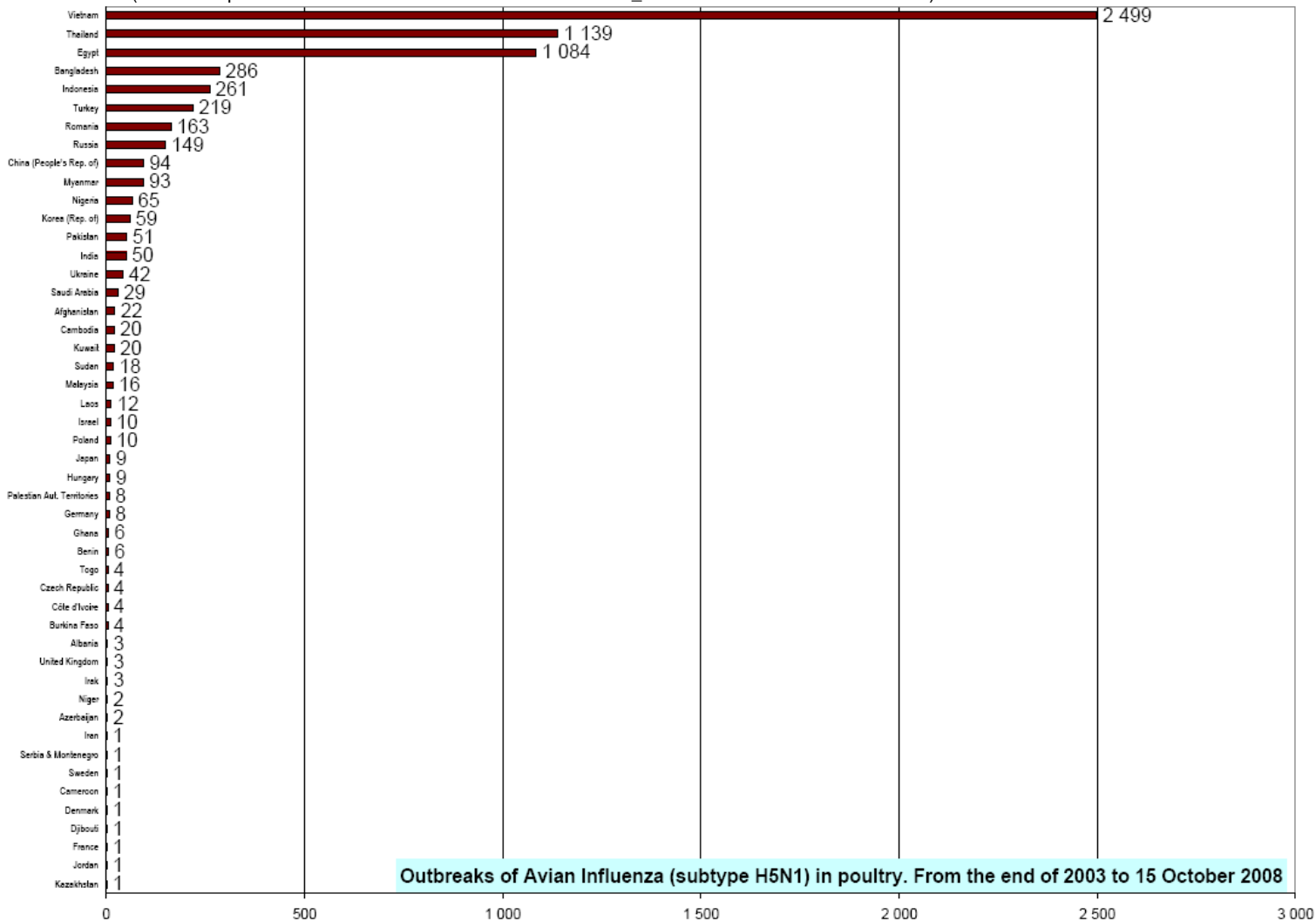


Table 2. H5N1 Influenza in Humans (Cases up to September 10, 2008)

(http://www.who.int/csr/disease/avian_influenza/country/cases_table_2008_09_10/en/index.html Downloaded 9/10/2008)

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	20	17	137	112
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	36	28	387	245