



# 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:** Regional activity
- **National:** During March 3–9, influenza activity remained elevated in the United States, but decreased in most areas

## Updates of Interest

- **International:** The 15<sup>th</sup> case of novel coronavirus infection has been identified

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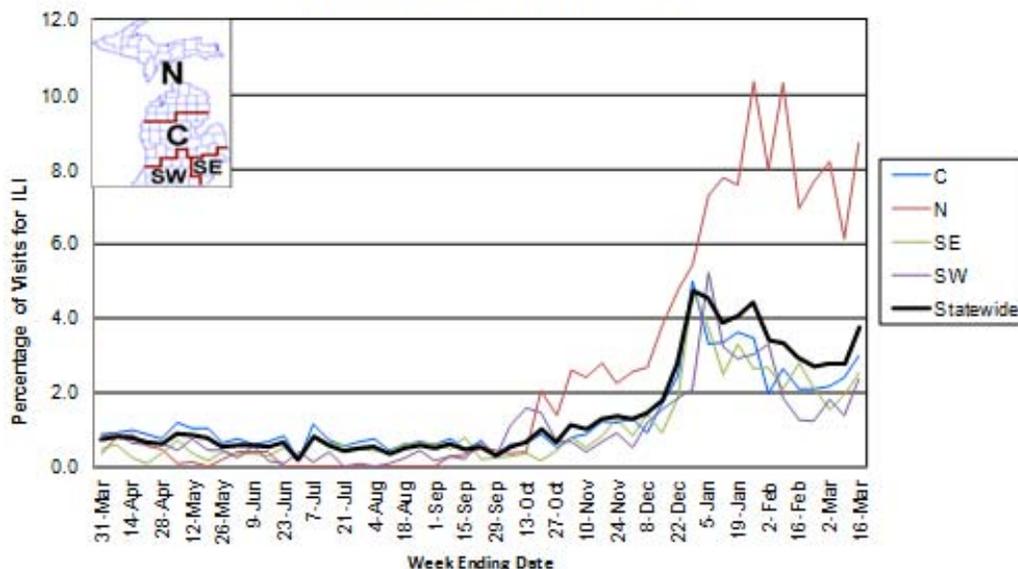
## Influenza Surveillance Reports

**Michigan Disease Surveillance System (as of March 21):** MDSS data for the week ending March 16th indicated that compared to levels from the previous week, individual reports increased slightly while aggregate influenza reports slightly decreased. Aggregate reports are similar to levels seen during the same time period last year, while individual reports are moderately increased.

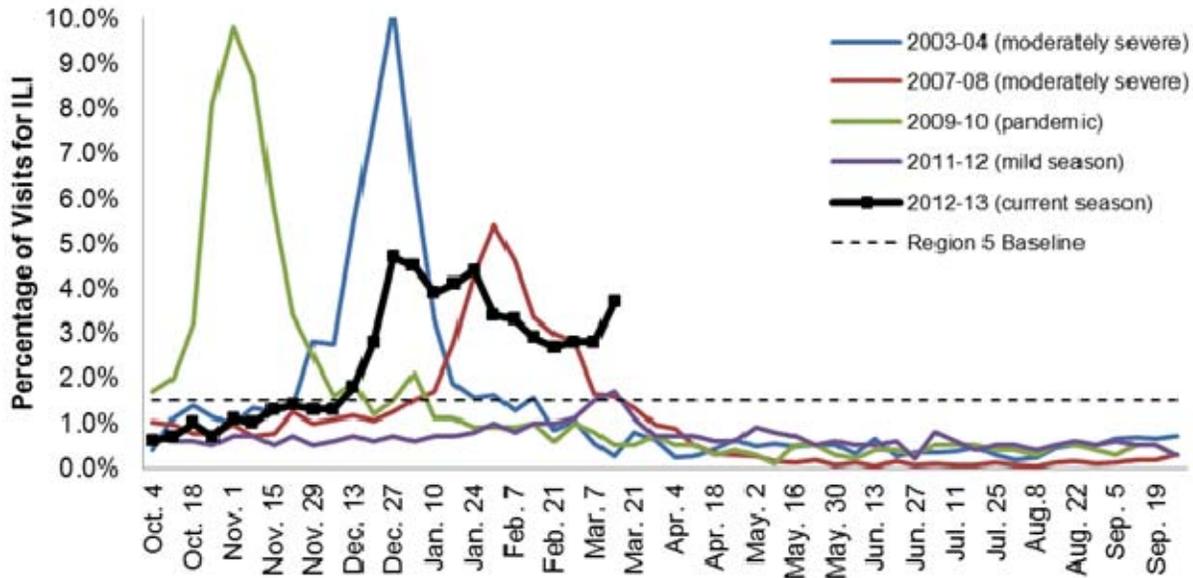
**Emergency Department Surveillance (as of March 21):** Compared to levels from the week prior, emergency department visits from constitutional complaints increased, while respiratory complaints remained steady. Constitutional complaints are slightly higher than levels reported during the same time period last year, while respiratory complaints are slightly lower. In the past week, there were 4 constitutional alerts in the SW(3) and C(1) Influenza Surveillance Regions and 2 statewide alerts and 1 respiratory alert in the C(1) Region.

**Sentinel Provider Surveillance (as of March 21):** During the week ending March 16, 2013, the proportion of visits due to influenza-like illness (ILI) increased to 3.7% overall; this is above the regional baseline (1.5%). A total of 362 patient visits due to ILI were reported out of 9,666 office visits. Data were provided by thirty-three sentinel sites from the following regions: C (11), N (7), SE (11) and SW (4). ILI activity increased in all four surveillance regions: Central (3.0%), North (8.7%), Southeast (2.5%) and Southwest (2.3%). 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 March 16):** 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. 14 new cases were identified during the past two weeks. As of March 16<sup>th</sup>, there have been 228 influenza hospitalizations (151 adult, 77 pediatric) within the catchment area. The incidence rate for adults is 22.1 hospitalizations per 100,000 population and for children is 36.9 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 March 16, 2013. Results for the past two weeks are listed in the table below.

Age Group	Hospitalizations Reported During Current Week	Total Hospitalizations 2012-13 Season
0-4 years	3 (2C, 1N)	32 (6SE, 21C, 5N)
5-17 years	0	13 (3SE, 8C, 2N)
18-49 years	7 (4SE, 2SW, 1N)	46 (29SE, 2SW, 10C, 5N)
50-64 years	8 (7SE, 1N)	75 (54SE, 3SW, 7C, 11N)
≥65 years	17 (10SE, 7N)	223 (148SE, 14SW, 14C, 47N)
<b>Total</b>	<b>34 (21SE, 1SW, 2C, 10N)</b>	<b>389 (240SE, 19SW, 60C, 70N)</b>

**Laboratory Surveillance (as of March 16):** During March 3-16, 4 influenza A(H3) (4C), 5 influenza A(H1N1)pdm09 (3SE, 1C, 1N), and 9 influenza B (1SE, 7C, 1N) results were reported by MDCH. For the 2012-13 season (starting Sept. 30, 2012), MDCH has identified 634 influenza results:

- Influenza A(H3): 492 (124SE, 169SW, 162C, 37N)
- Influenza A(H1N1)pdm09: 20 (12SE, 2SW, 3C, 3N)
- Influenza B: 130 (28SE, 21SW, 67C, 14N)
- Parainfluenza: 8 (3SW, 1C, 4N)
- RSV: 1 (1N)

15 sentinel labs (SE, SW, C, N) reported for the week ending March 16, 2013. 11 labs (SE, SW, C, N) reported low or decreasing flu A activity. 19 labs (SE, SW, C) reported flu B activity, with the highest activity occurring in the SE. Flu B activity is higher than flu A activity but is declining. 4 labs (SE, SW, C) had sporadic parainfluenza activity. 15 labs (SE, SW, C, N) reported steady RSV activity. 4 labs (SE, SW, C) had low HMPV activity. Testing volumes are moderate but falling, with the highest in the SE.

**Michigan Influenza Antigenic Characterization (as of March 21):** For the 2012-13 season, 102 Michigan influenza B specimens have been characterized at MDCH BOL. 83 specimens are

B/Wisconsin/01/2010-like, matching the B component of the 2012-13 influenza vaccine. 19 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 March 21):** For the 2012-13 season, 30 influenza A/H3 specimens and 15 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 March 21):** 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 March 21):** 1 respiratory outbreak in a K-12 school in the SE Region was reported during the past week. 103 respiratory outbreaks (20SE, 28SW, 38C, 17N) have been reported to MDCH during the 2012-13 season; testing results are listed below.

- Influenza A/H3: 16 (7SW, 9C)
- Influenza A: 53 (9SE, 13SW, 19C, 12N)
- Influenza B: 6 (1SE, 3SW, 1C, 1N)
- Influenza A and B: 2 (1SE, 1SW)
- Influenza positive: 4 (1SE, 1SW, 2C)
- Influenza and RSV positive: 1 (1C)
- Negative/no testing: 21 (8SE, 3SW, 6C, 4N)

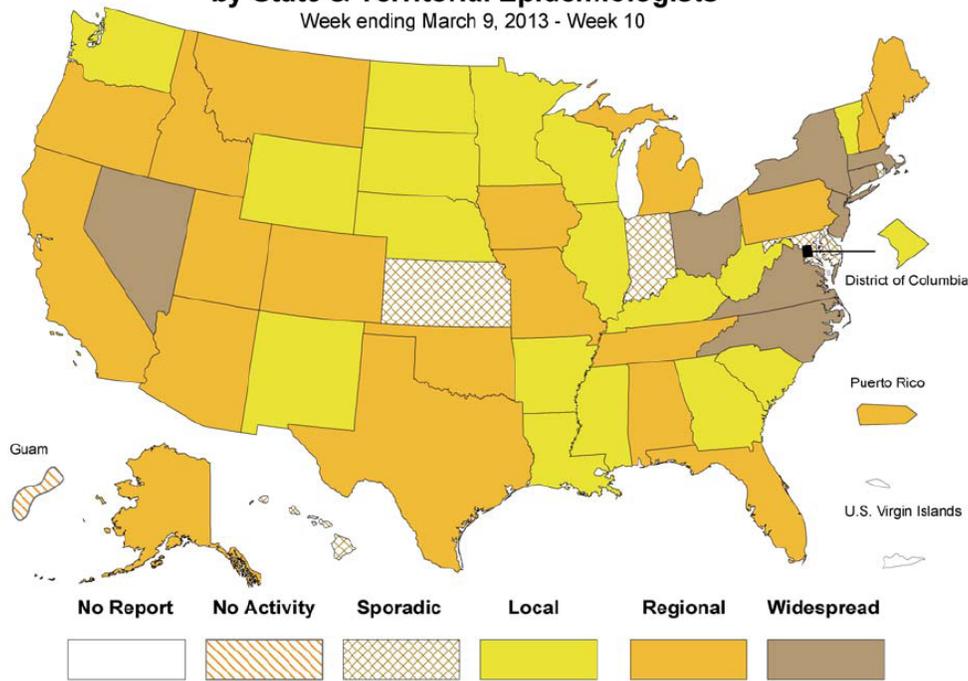
**National (CDC [edited], March 8):** During week 9 (February 24 – March 2, 2013), influenza activity remained elevated in the United States, but decreased in most areas. Of 6,259 specimens tested and reported by collaborating laboratories, 1,074 (17.2%) were positive for influenza. The proportion of deaths attributed to pneumonia and influenza (P&I) was above the epidemic threshold. Six pediatric deaths were reported. A cumulative rate for the season of 38.5 laboratory-confirmed influenza-associated hospitalizations per 100,000 population was reported. Of reported hospitalizations, over 51% were among adults 65 years and older. The proportion of outpatient visits for influenza-like illness (ILI) was 2.3%. This is above the national baseline of 2.2%. Seven of 10 regions reported ILI at or above region-specific baseline levels. Four states experienced moderate activity; 13 states and New York City experienced low activity; 33 states experienced minimal activity, and the District of Columbia had insufficient data. Nine states reported widespread influenza activity; Puerto Rico and 24 states reported regional influenza activity; the District of Columbia and 13 states reported local influenza activity; 4 states reported sporadic influenza activity; Guam reported no influenza activity, and the U.S. Virgin Islands did not report.

**National (CDC [edited], March 15):** During week 10 (March 3 – 9, 2013), influenza activity remained elevated in the United States, but decreased in most areas. Of 5,747 specimens tested and reported by collaborating laboratories, 821 (14.3%) were positive for influenza. The proportion of deaths attributed to pneumonia and influenza (P&I) was above the epidemic threshold. Twelve pediatric deaths were reported. A cumulative rate for the season of 39.6 laboratory-confirmed influenza-associated hospitalizations per 100,000 population was reported. Of reported hospitalizations, 51% were among adults 65 years and older. The proportion of outpatient visits for influenza-like illness (ILI) was 2.6%. This is above the national baseline of 2.2%. Six of 10 regions reported ILI at or above region-specific baseline levels. Five states and New York City experienced moderate activity; 12 states experienced low activity; and 33 states and the District of Columbia experienced minimal activity. Eight states reported widespread influenza activity; Puerto Rico and 19 states reported regional influenza activity; the District of Columbia and 17 states reported local influenza activity; 6 states reported sporadic influenza activity; Guam reported no influenza activity, and the U.S. Virgin Islands did not report.

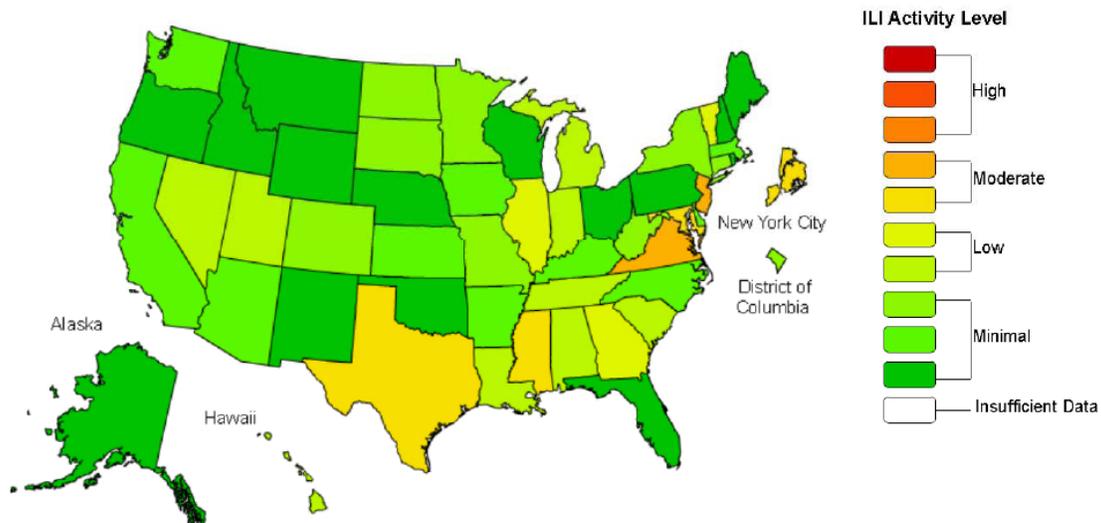
The complete FluView report is available online at <http://www.cdc.gov/flu/weekly/fluactivity.htm>.

## Weekly Influenza Activity Estimates Reported by State & Territorial Epidemiologists\*

Week ending March 9, 2013 - Week 10



### Influenza-Like Illness (ILI) Activity Level Indicator Determined by Data Reported to ILINet 2012-13 Influenza Season Week 10 ending Mar 09, 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.

**International (WHO [edited], March 15):** Influenza activity in North America continued to decrease overall, though activity remained high in some areas. The proportion of influenza B has increased in the United States of America (USA), but influenza A(H3N2) still remained the most commonly detected virus. The season in the USA has been more severe than any since 2003-4 as reflected in numbers of pneumonia and influenza deaths but the impact has been greatest in individuals over the age of 65 years. Activity in Mexico has also decreased over the past several weeks since peaking in mid to late January. Influenza activity remained high across Europe but an increasing number of countries reported declining transmission. The proportion of types and subtypes of viruses circulating was not uniform across the continent. Influenza B has been more commonly detected than A in some countries while, mainly in Eastern parts of Europe very little circulation of influenza B has been detected. Excess mortality in most countries has been moderate and most deaths occurred among people aged 65 and older. Influenza

activity throughout the temperate region of Asia decreased overall except in Mongolia and the Republic of Korea where activity persists. Low levels of influenza activity were reported across the tropical regions of the world and activity in countries of the southern hemisphere remained at inter-seasonal levels. A couple of viruses with resistance to neuraminidase inhibitors have been detected in countries doing testing. 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 REGIONAL INFLUENZA ACTIVITY to CDC for the week ending March 16, 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, Human (Influenza and Other Respiratory Viruses abstract, March 17):** Khaokham et al. (2013) Seroepidemiologic investigation of an outbreak of pandemic influenza A H1N1 2009 aboard a US Navy Vessel—San Diego, 2009. *Influenza and Other Respiratory Viruses* DOI: 10.1111/irv.12100.

**Background:** During summer 2009, a US Navy ship experienced an influenza-like illness outbreak with 126 laboratory-confirmed cases of pandemic influenza A (H1N1) 2009 virus among the approximately 2000-person crew.

**Methods:** During September 24–October 9, 2009, a retrospective seroepidemiologic investigation was conducted to characterize the outbreak. We administered questionnaires, reviewed medical records, and collected post-outbreak sera from systematically sampled crewmembers. We used real-time reverse transcription-PCR or microneutralization assays to detect evidence of H1N1 virus infection.

**Results:** Retrospective serologic data demonstrated that the overall H1N1 virus infection attack rate was 32%. Weighted H1N1 virus attack rates were higher among marines (37%), junior-ranking personnel (34%), and persons aged 19–24 years (36%). In multivariable analysis, a higher risk of illness was found for women versus men (odds ratio [OR] = 2.2; 95% confidence interval [CI]: 1.1–4.4), marines versus navy personnel (OR = 1.7; 95% CI, 1.0–2.9), and those aged 19–24 versus ≥35 years (OR = 3.9; 95% CI, 1.2–12.8). Fifty-three percent of infected persons did not recall respiratory illness symptoms. Among infected persons, only 35% met criteria for acute respiratory illness and 11% for influenza-like illness.

**Conclusions:** Approximately half of H1N1 infections were asymptomatic, and thus, the attack rate was higher than estimated by clinical illness alone. Enhanced infection control measures including pre-embarkation illness screening, improved self-reporting of illness, isolation of ill and quarantine of exposed contacts, and prompt antiviral chemoprophylaxis and treatment might be useful in controlling shipboard influenza outbreaks.

The abstract is available online at <http://onlinelibrary.wiley.com/doi/10.1111/irv.12100/abstract>.

**International, Human (WHO, March 12):** The Ministry of Health in Saudi Arabia has informed WHO of a new confirmed case of infection with the novel coronavirus (nCoV).

The patient, a 39-year-old male, developed symptoms on 24 February 2013. He was hospitalized on 28 February 2013 and died on 2 March 2013. Preliminary investigation indicated that the patient had no contact with previously reported cases of nCoV infection. Other potential exposures are under investigation.

To date, WHO has been informed of a global total of 15 confirmed cases of human infection with nCoV, including nine deaths.

Based on the current situation and available information, WHO encourages all Member States (MS) to continue their surveillance for severe acute respiratory infections (SARI) and to carefully review any

unusual patterns. WHO is currently working with international experts and countries where cases have been reported to assess the situation and review recommendations for surveillance and monitoring.

All MS are reminded to promptly assess and notify WHO of any new case of infection with nCoV, along with information about potential exposures that may have resulted in infection and a description of the clinical course.

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 closely monitor the situation.

The alert is available online at [http://www.who.int/csr/don/2013\\_03\\_12/en/index.html](http://www.who.int/csr/don/2013_03_12/en/index.html).

**International, Research (CIDRAP, March 15):** Deep genome sequencing of a novel coronavirus (NCoV) obtained directly from a sick patient's sputum shows a close relationship to European bat coronaviruses, a team led by scientists from the Wellcome Trust Sanger Institute in the United Kingdom reported today. Their findings appear in an early online article in *Emerging Infectious Diseases*. The researchers sequenced a sample obtained from a Qatari man who became ill in Saudi Arabia and was hospitalized in London in September of last year, using a sequencing method that shortens the interval between clinical sample processing and genome assembly to 1 week. They compared the sequence with ones from a later sample obtained from the man, a clinical sample from a Saudi Arabian man infected with the virus in June 2012, and bat samples in a gene database. Their goals were to find clues about the virus precursors and how long it has circulated in its current form. Phylogenetic analysis revealed a close relationship to European bat coronaviruses among the *Vesperilionidae* family. Another analysis suggested that the two human samples had a common ancestor, likely well before June 2012, which they said points to multiple zoonotic events rather than just one chain of transmission. Europe and the Middle East would be good regions to conduct more intensive surveillance studies on bats and other animal reservoirs, they noted. More full-genome sequences from other human cases and sampling from bats and other related animals will help more precisely identify the origin of the virus, how it evolved, and the mechanisms of pathogenesis, said the researchers. In November a research group based at Erasmus University in the Netherlands reported complete genetic sequencing of an isolate from the Saudi man who died in June. Their findings suggested that the NCoV sample was closely related to two species of Asian bats and may be even more closely related to a bat coronavirus found in the Netherlands in 2008.

The CIDRAP article is at [www.cidrap.umn.edu/cidrap/content/other/sars/news/mar1513newsscans.html](http://www.cidrap.umn.edu/cidrap/content/other/sars/news/mar1513newsscans.html).  
The Emerging Infectious Diseases article is online at [wwwnc.cdc.gov/eid/article/19/5/13-0057\\_article.htm](http://wwwnc.cdc.gov/eid/article/19/5/13-0057_article.htm).

**International, Poultry (OIE [edited], March 8):** Low path avian influenza H5; Australia  
Outbreak 1: Henley Brook, WESTERN AUSTRALIA  
Date of start of the outbreak: 14/02/2013; Outbreak status: Continuing; Epidemiological unit: Village  
Species: Birds; Susceptible: 95; Cases: 1; Deaths: 0; Destroyed: 95  
Affected population: One duck from a flock of backyard poultry (ducks and chickens) was found to be infected with low pathogenic avian influenza H5. This was an incidental finding.

**International, Poultry (OIE [edited], March 9):** Highly pathogenic avian influenza H5N1; India  
Outbreak 1: Madhubani, Lanka Tola, Purnea, BIHAR  
Date of start of the outbreak: 27/02/2013; Outbreak status: Continuing; Epidemiological unit: Farm  
Species: Birds; Susceptible: 7000; Cases: 338; Deaths: 338  
Affected population: A poultry farm

**International, Poultry (OIE [edited], March 12):** Highly pathogenic avian influenza H5N1; Cambodia  
Outbreak 1 (151/13NaVRI): Knar Thmey, Chreave, Siem Reap, SIEM REAP  
Date of start of the outbreak: 20/02/2013; Outbreak status: Resolved; Epidemiological unit: Farm  
Species: Birds; Susceptible: 2369; Cases: 10; Deaths: 10; Destroyed: 2359  
Affected population: Poultry farm

**International, Poultry (OIE [edited], March 13):** Low pathogenic avian influenza H7N7; Netherlands  
Outbreak 1: Lochem, GELDERLAND  
Date of start of the outbreak: 11/03/2013; Outbreak status: Continuing; Epidemiological unit: Farm  
Species: Birds; Susceptible: 80152; Cases: 200; Deaths: 0; Destroyed: 80152

**Michigan Wild Bird Surveillance (USDA, as of March 21):** 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)

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**Table. H5N1 Influenza in Humans – As of March 12, 2013.** [http://www.who.int/influenza/human\\_animal\\_interface/EN\\_GIP\\_20130312\\_CumulativeNumberH5N1cases.pdf](http://www.who.int/influenza/human_animal_interface/EN_GIP_20130312_CumulativeNumberH5N1cases.pdf). Downloaded 3/20/2013. 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	9	8	30	27
China	22	14	5	3	4	4	7	4	2	1	1	1	2	1	2	2	45	30
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	1	1	170	61
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	12	11	622	371