



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:** Sporadic influenza activity
- **National:** During March 30-April 5, activity continued to decrease in most U.S. regions

Updates of Interest:

- **International:** Malaysia and the Phillipines report confirmed MERS-CoV cases associated with travel to the Middle East

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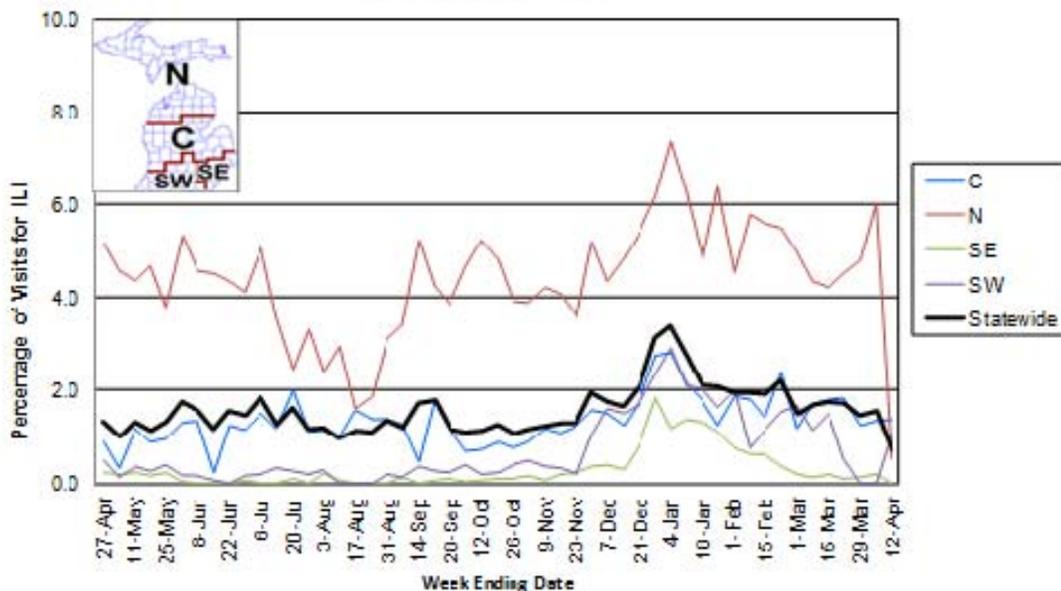
Influenza Surveillance Reports

Michigan Disease Surveillance System (as of April 17): MDSS influenza data for the week ending April 12, 2014 indicated that compared to levels from the previous week, individual reports remained steady while aggregate reports decreased. Aggregate reports are moderately lower than levels seen during the same time period last year, while individual reports are slightly lower.

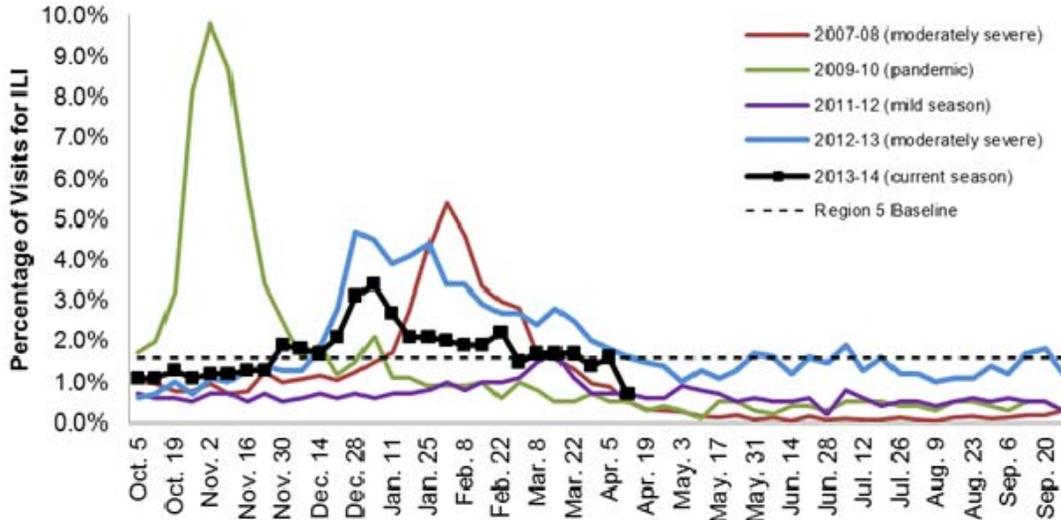
Emergency Department Surveillance (as of April 17): Emergency department visits due to constitutional complaints minimally increased during the week ending April 12, 2014, while respiratory complaints remained steady. Emergency department visits from both constitutional and respiratory complaints are slightly lower than levels during the same time period last year. Respiratory complaints are at fall/winter baseline levels. In the past week, there were 3 constitutional alerts in the SW(2) and C(1) Influenza Surveillance Regions and 5 respiratory alerts in the SW(2) and C(3) Regions.

Sentinel Provider Surveillance (as of April 17): During the week ending April 12, 2014, the proportion of visits due to influenza-like illness (ILI) decreased to 0.7% overall; this is below the regional baseline (1.6%). A total of 59 patient visits due to ILI were reported out of 8,195 office visits. Data were provided by 25 sentinel sites from the following regions: Central (9), North (4), Southeast (10), and Southwest (2). ILI activity decreased in two regions: N (0.5%) and SE (0.0%) and increased in two regions: C (1.4%) and SW (1.0%). 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
2013-14 Flu Season



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 Stefanie DeVita at 517-335-3385 or DeVitaS1@michigan.gov for more information.

Hospital Surveillance (as of April 17): 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, 2013, for Clinton, Eaton, Genesee, and Ingham counties. 3 new cases (2 pediatric, 1 adult) were identified since the last report. 2 previously reported adult cases were removed from case counts. As of April 17th, there have been 226 influenza hospitalizations (67 pediatric, 159 adult) within the catchment area. Based on these counts, within the catchment area there are 32.1 pediatric influenza hospitalizations/100,000 population and 23.4 adult influenza hospitalizations/100,000.

The MDCH Influenza Sentinel Hospital Network monitors influenza hospitalizations reported voluntarily by hospitals statewide. 6 hospitals (SE,SW,C,N) reported for the week ending April 12, 2014. Results are listed in the table below.

Age Group	Hospitalizations Reported During the Previous Week	Total Hospitalizations 2013-14 Season
0-4 years	1 (1C)	53 (7SE,2SW,44C,4N)
5-17 years	0	21 (1SE,20C)
18-49 years	0	117 (63SE,4SW,41C,9N)
50-64 years	0	138 (87SE,5SW,31C,15N)
≥65 years	2 (1SE,1N)	117 (73SE,7SW,15C,22N)
Total	3 (1SE,1C,1N)	450 (231SE,18SW,151C,50N)

Laboratory Surveillance (as of April 12): During April 6-12, 6 positive 2009 A/H1N1pdm (2SE,4SW) influenza results were reported by MDCH Bureau of Laboratories. For the 2013-14 season (starting Sept. 29, 2013), MDCH has identified 366 positive influenza results:

- Influenza 2009 A/H1N1pdm: 337 (76SE,130SW,94C,38N)
- Influenza A/H3: 13 (10SE,2SW,1C)
- Influenza A unsubtypeable: 1 (1SE)
- Influenza A and B (LAIV recovery): 1 (1SE)
- Influenza B: 14 (7SE,2SW,4C,1N)
- RSV: 2 (2SW)
- Adenovirus: 1 (1SE)
- Parainfluenza: 2 (1SE,1SW)
- Human metapneumovirus: 4 (4SW)

11 sentinel labs (SE,SW,C) reported for the week ending April 12, 2014. 8 labs (SE,SW,C) had sporadic to low flu A activity. 5 labs (SE,C) had sporadic to low flu B activity. 6 labs (SE,SW,C) had low RSV activity. 2 labs (SE,SW) had sporadic parainfluenza activity. 4 labs (SE,SW) had steady or increasing hMPV activity. 2 labs (SE) reported sporadic adenovirus activity. Testing volumes are low to moderate and declining.

Michigan Influenza Antigenic Characterization (as of April 17): For the 2013-14 season, 3 Michigan influenza specimens (1SE,2C) have been characterized at CDC as A/California/07/2009-like/H1N1/pdm09,

matching the influenza A/H1N1pdm09 strain in the 2013-14 Northern Hemisphere vaccine. 2 specimens (2C) have been characterized at CDC and MDCH as B/Brisbane/60/2008-like, which is a B/Victoria lineage virus; it is not in the 2013-14 Northern Hemisphere trivalent vaccine but is in the quadrivalent vaccine. 9 specimens (7SE,2SW) have been characterized at CDC and MDCH as B/Massachusetts/02/2012-like, which is a B/Yamagata lineage virus that is included in the 2013-14 trivalent and quadrivalent vaccines.

Michigan Influenza Antiviral Resistance Data (as of April 17): For the 2013-14 season, 120 2009 A/H1N1pdm (32SE,35SW,41C,12N) and 9 A/H3 (6SE,2SW,1C) influenza specimens have been tested at the MDCH BOL for antiviral resistance. None of the influenza specimens 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>.

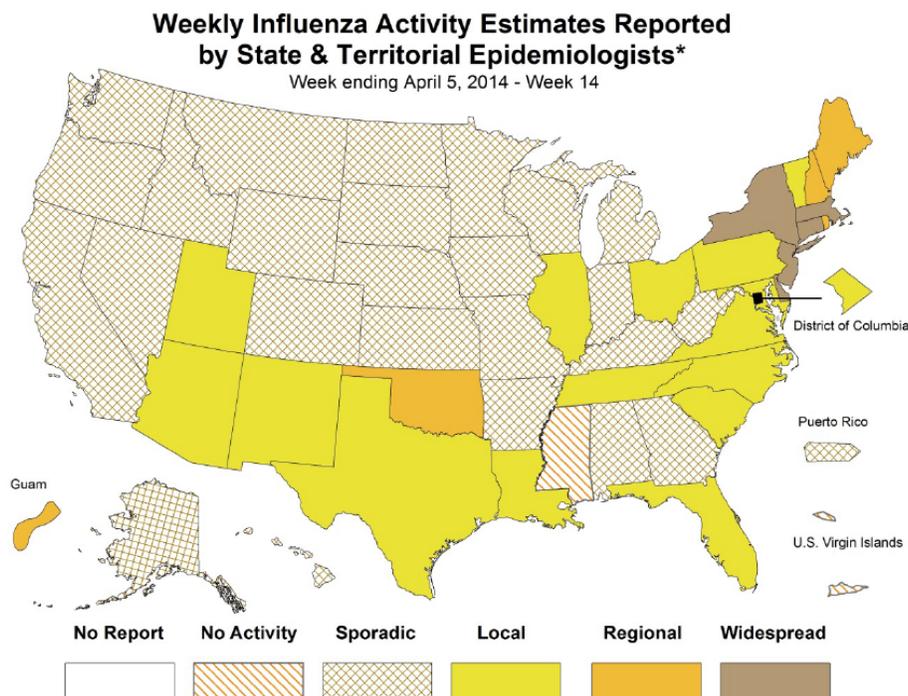
Influenza-associated Pediatric Mortality (as of April 17): 2 pediatric influenza-associated influenza mortalities (1SE,1C) have been reported to MDCH for the 2013-14 season.

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_pediatic_influenza_guidance_v2_214270_7.pdf.

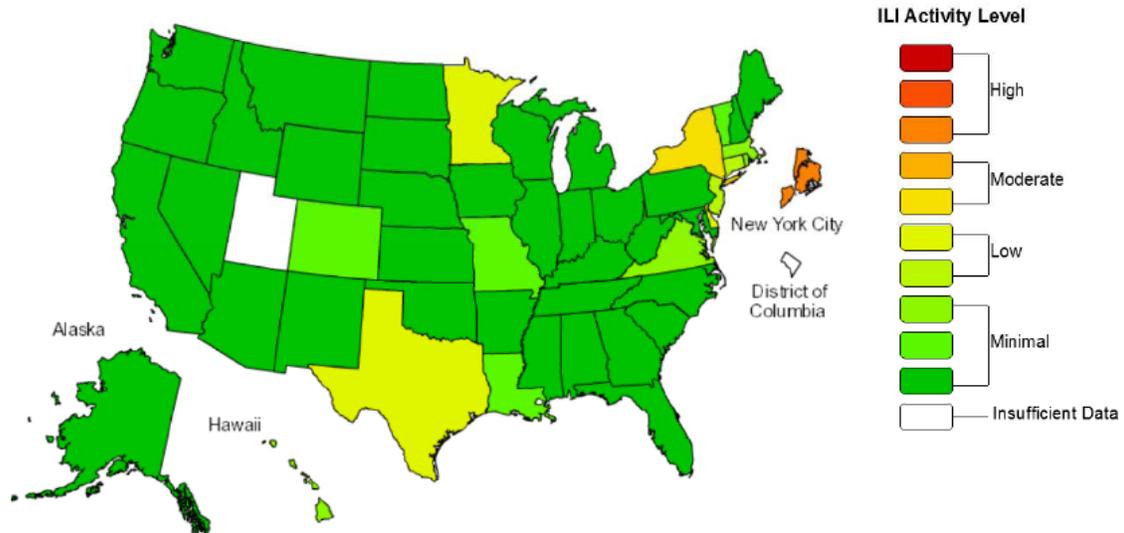
Influenza Congregate Settings Outbreaks (as of April 17): One respiratory outbreak in a long-term care facility (SE) was reported to MDCH in the past week; an investigation is ongoing. 17 respiratory outbreaks (2SE,8SW,6C,1N) have been reported to MDCH during the 2013-14 season:

- Influenza 2009 A/H1N1pdm: 4 (1SE,2SW,1C)
- Influenza A/H3 positive: 1 (1SW)
- Influenza A positive: 4 (3SW,1C)
- Influenza positive: 1 (1SW)
- Human metapneumovirus: 1 (1N)
- RSV: 1 (1SW)
- Negative/no testing: 5 (1SE,4C)

National (CDC [edited], April 11): During week 14 (March 30-April 5, 2014), influenza activity continued to decrease in most regions of the United States. Of 5,127 specimens tested and reported during week 14 by U.S. WHO and NREVSS collaborating laboratories, 685 (13.4%) were positive for influenza. The proportion of deaths attributed to pneumonia and influenza was below the epidemic threshold. Three influenza-associated pediatric deaths were reported. A season-cumulative rate of 32.4 laboratory confirmed influenza-associated hospitalizations per 100,000 population was reported. The proportion of outpatient visits for influenza-like illness (ILI) was 1.6%, which is below the national baseline of 2.0%. Two of 10 regions reported ILI at or above region-specific baseline levels. New York City experienced high ILI activity; one state experienced moderate ILI activity; five states experienced low ILI activity; 43 states experienced minimal ILI activity, and the District of Columbia and one state had insufficient data. The geographic spread of influenza in five states was reported as widespread; Guam and four states reported regional influenza activity; the District of Columbia and 15 states reported local influenza activity; Puerto Rico and 25 states reported sporadic activity; the U.S. Virgin Islands and one state reported no activity.

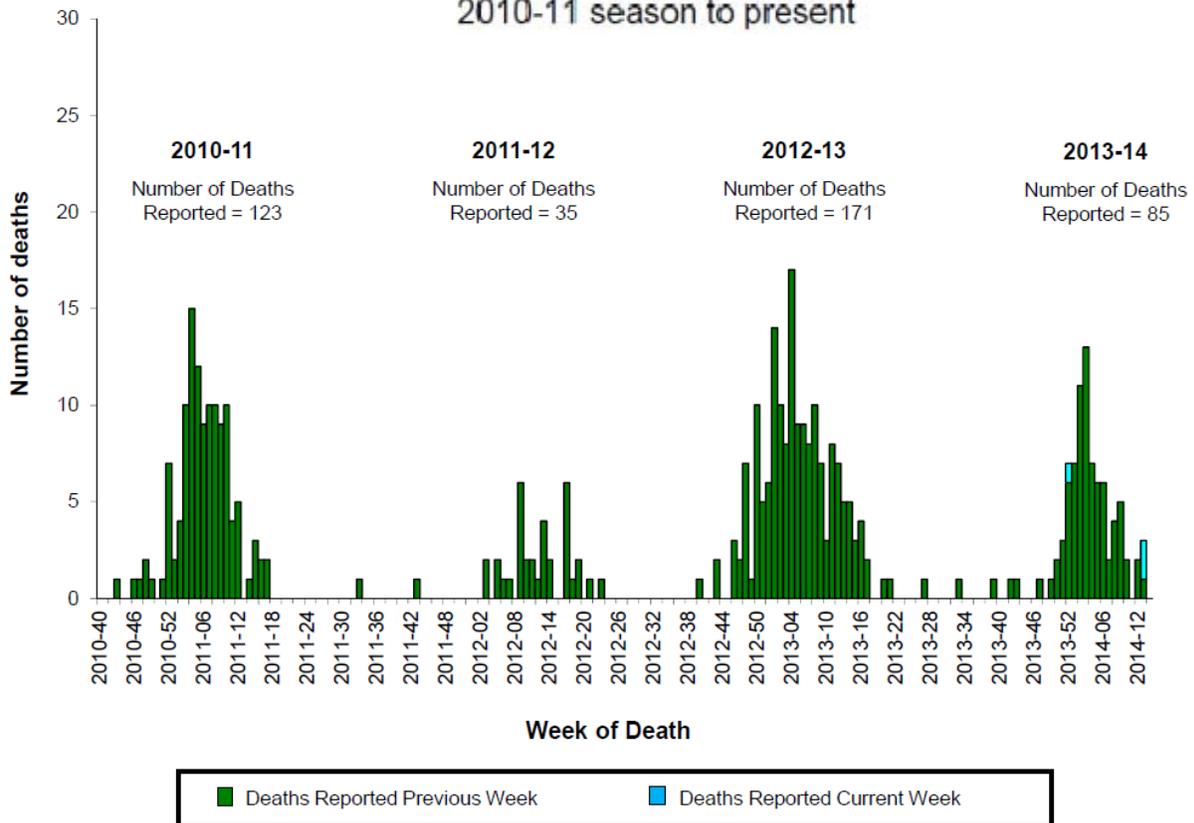


**Influenza-Like Illness (ILI) Activity Level Indicator Determined by Data Reported to ILINet
2013-14 Influenza Season Week 14 ending Apr 05, 2014**



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.

**Number of Influenza-Associated Pediatric Deaths by Week of Death:
2010-11 season to present**



Complete weekly FluView reports are available online at: <http://www.cdc.gov/flu/weekly/>.

International (WHO [edited], April 7): Globally, the northern hemisphere influenza season appeared to be approaching interseasonal levels in most countries. The proportion of influenza B detections however increased slightly in many regions, especially Asia, the Middle East, and North America. In North America, influenza levels continued to decline and the season was coming to its end. Late season circulation of influenza B continued, however, the overall levels of influenza remained low. In Eastern Asia, activity was

approaching interseasonal levels, with influenza B emerging as the current predominant virus. This timing aligns with previous seasonal trends in the region. Mongolia continues to experience elevated activity, despite levels beginning to decline. In Tropical Asia, activity continued to decline, aligning with global seasonal trends. While in Thailand activity remained elevated, small decreases were seen. In Northern Africa and Western Asia, activity remained low despite the increasing proportion of influenza B positive samples. In the Caribbean, activity remained low and at interseasonal levels in most countries, however ILI activity and influenza detections increased in Guyana and Guadeloupe. In the Southern Hemisphere, activity remained low and detections were sporadic. Based on FluNet reporting (as of 3 April 2014), during 9 March to 22 March 2014, National Influenza Centres and other national influenza labs from 96 countries, areas or territories reported data. The WHO GISRS labs tested more than 65498 specimens. 10986 were positive for influenza viruses, of which 7407 (67.4%) were typed as A and 3579 (32.6%) as B. Of the sub-typed A viruses, 2747 (57%) were A(H1N1)pdm09 and 2072 (43%) were A(H3N2). Of the characterized B viruses, 222 (87.1%) belong to the B-Yamagata lineage and 33 (12.9%) to the B-Victoria lineage.

The full report is online at www.who.int/influenza/surveillance_monitoring/updates/latest_update_GIP_surveillance/en/index.html.

MDCH reported SPORADIC INFLUENZA ACTIVITY to CDC for the week ending April 12, 2014.

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.

Novel Influenza Activity and Other News

WHO Pandemic Phase: Post-pandemic – Influenza disease activity has returned to levels normally seen for seasonal influenza.

International, MERS-CoV (WHO [edited], April 11): On 9 April 2014, the Ministries of Health of Jordan notified WHO of an additional laboratory-confirmed case of infection with Middle East respiratory syndrome coronavirus (MERS-CoV).

The patient is a 52 year-old man with underlying medical conditions. He visited Saudi Arabia from 20 to 29 March. He became ill on 25 March and visited a hospital in Jeddah. He returned to Jordan on 29 March and visited a hospital in Amman on the same day and on 2 April. He is currently in a stable condition.

The concerned authorities in Jordan are in contact with the concerned authorities in Saudi Arabia to follow up on all close contacts of the case.

Globally, from September 2012 to date, WHO has been informed of a total of 212 laboratory-confirmed cases of infection with MERS-CoV, including 88 deaths.

The full report is available online at http://www.who.int/csr/don/2014_04_11_mers/en/.

International, MERS-CoV (WHO [edited], April 14): WHO has been informed of an additional 16 laboratory-confirmed cases of infection with Middle East respiratory syndrome coronavirus (MERS-CoV) from Saudi Arabia and the United Arab Emirates (UAE).

The 15 additional laboratory-confirmed cases, including two deaths announced on the Ministry of Health of Saudi Arabia website and provided to WHO between 6 and 11 April include:

- A 70 year-old man from Jeddah with underlying medical conditions. He became ill on 24 March, was hospitalized on 29 March and died on 5 April.
- A 28 year-old man from Jeddah with no reported symptom of illness. The man is a household contact of the above mentioned laboratory-confirmed case.
- Three health-care workers – a 26 year-old woman, a 26 year-old man and a 33 year-old man with no symptoms of illness.
- A 28 year-old man who is a health-care worker in Jeddah. He became ill on 28 March, was admitted to a hospital on 3 April and is currently receiving treatment in an intensive care unit.
- A 35 year-old man from Jeddah with no reported symptom of illness.
- A 32 year-old woman from Jeddah who is a health-care worker with no reported symptom of illness.

- A 45 year-old man from Riyadh. He became ill on 30 March, was hospitalized on 5 April and is currently receiving treatment in an intensive care unit. He had no history of exposure to animals nor contact with a laboratory-confirmed case.
- A 90 year-old man from Riyadh. He became ill on 30 March, was hospitalized on 1 April, and is currently receiving treatment in an intensive care unit. He had no history of exposure to animals nor contact with a laboratory-confirmed case.
- A 57 year-old man from Riyadh with underlying medical conditions. He became ill on 16 March, was admitted to a hospital on 19 March and died on 30 March.
- Four men aged 29, 33, 34 and 70 years old from Jeddah.

Additionally, a previously laboratory-confirmed case has died. The concerned health authorities in Saudi Arabia are currently conducting investigations into the contacts of the cases.

The additional laboratory-confirmed case reported by the Ministry of Health of the UAE on 10 April 2014 includes:

- A 45 year-old man from Abu Dhabi who became ill on 6 April, was hospitalized on 7 April and died on 10 April. The patient was not known to have any chronic disease. He did not have a recent history of travel or contact with animals or with a previously laboratory-confirmed case.

The concerned health authorities in the UAE are conducting investigations into the contacts of the case.

Globally, from September 2012 to date, WHO has been informed of a total of 228 laboratory-confirmed cases of infection with MERS-CoV, including 92 deaths.

The full report is available online at http://www.who.int/csr/don/2014_04_14_mers/en/.

International, MERS-CoV (WHO [edited], April 16): On 13 and 14 April 2014 United Arab Emirates (UAE) reported a cluster of ten laboratory-confirmed cases of Middle East respiratory syndrome coronavirus (MERS-CoV) infection among health-care workers identified through screening of contacts of a previously laboratory-confirmed case from Abu Dhabi who died on 10 April 2014.

The following details were provided to WHO:

- A 37 year-old woman from Abu Dhabi with no reported underlying medical condition. She was screened and hospitalized on 9 April with mild illness.
- A 41 year-old man from Abu Dhabi with no reported underlying medical condition. He was screened and hospitalized on 9 April.
- A 43 year-old woman from Abu Dhabi with underlying medical conditions. She was screened and hospitalized on 9 April with mild illness.
- A 33 year-old man from Abu Dhabi with no reported underlying medical condition. He was screened and hospitalized on 9 April with mild illness.
- A 46 year-old man from Abu Dhabi with underlying medical conditions. He was screened and hospitalized on 9 April with mild illness.
- A 48 year-old man from Abu Dhabi with underlying medical conditions. He was screened and hospitalized on 9 April, 2014 with symptoms of pneumonia.
- A 37 year-old man from in Abu Dhabi with no reported underlying medical condition. He was screened and hospitalized on 9 April with mild illness.
- A 43 year-old man from Abu Dhabi with no reported underlying medical condition. He was screened and hospitalized on 10 April without any illness.
- A 27 year-old man from Abu Dhabi with underlying medical conditions. He was screened and hospitalized on 10 April without any illness.
- A 43 year-old man from Abu Dhabi with no reported underlying medical condition. He was screened and hospitalized on 10 April without any illness.

Currently, all the cases are in stable condition and their family and health care contacts are being followed up.

Globally, from September 2012 to date, WHO has been informed of a total of 238 laboratory-confirmed cases of infection with MERS-CoV, including 92 deaths.

The full report is available online at http://www.who.int/csr/don/2014_04_16_mers/en/.

International, MERS-CoV (Associated Press, April 16): A Malaysian man who went on a pilgrimage to Saudi Arabia has become the first death in Asia from Middle East respiratory syndrome, while the Philippines has isolated a health worker who tested positive for the deadly coronavirus.

Malaysia's health ministry said the Muslim man returned to Malaysia on March 29 and developed a high fever and cough and had difficulty breathing more than a week later. The man, a 54-year-old from southern Johor state neighbouring Singapore, died Sunday in a hospital, it said Wednesday.

"Investigations showed that the cause of death is severe pneumonia secondary to MERS-CoV," the ministry said in a statement.

The ministry urged all passengers travelling with the victim on Turkish Airlines on March 29 to report for health checks. It said it was also checking on people who have been in close contact with the man.

MERS belongs to a family of viruses that includes both the common cold and SARS, which killed some 800 people in a global outbreak in 2003. It can cause fever, breathing problems, pneumonia and kidney failure. It was first identified in 2012 in the Middle East, where most cases since have been diagnosed.

In the Philippines, Health Secretary Enrique Ona said the Filipino health worker had a positive blood test for the virus but showed no symptoms.

The man had personal contact with another Filipino hospital worker who died of the virus last week in the United Arab Emirates. Blood test results were released in the UAE after he arrived in the Philippines, and authorities immediately informed the Philippine Embassy.

The man has been isolated and people who had contact with him are being traced and quarantined, Ona said. Officials are also tracing the plane passengers who were seated near the Filipino during the flight to Manila.

The health department said it is sending an epidemiology expert and an infectious disease specialist to UAE after the death of the Filipino there and reports that six other Filipinos were found to have the virus.

Singapore's health ministry instructed hospitals to be vigilant in testing for the virus if patients reported serious respiratory illness and have travelled abroad. The ministry said the possibility of an imported case cannot be ruled out given global travel patterns.

The World Health Organization said it has been informed of 238 confirmed cases globally, including 92 deaths, since September 2012.

While MERS does not seem to spread as quickly between people as SARS did, it appears to be more deadly.

The article is available online at

<http://www.canada.com/health/Filipino+tested+positive+MERS+virus+returns+home+from+first+known/9743791/story.html>.

International, Human (WHO [edited], April 11): The Centre for Health Protection (CHP), Hong Kong, SAR, China and the National Health and Family Planning Commission (NHFPC) of China recently notified WHO of 2 additional laboratory-confirmed cases of human infection with avian influenza A(H7N9) virus.

The full report is available online at http://www.who.int/csr/don/2014_04_11_h7n9/en/.

International, Human (WHO [edited], April 14): On 11 April 2014, the National Health and Family Planning Commission (NHFPC) of China notified WHO of 4 additional laboratory-confirmed cases of human infection with avian influenza A(H7N9) virus.

The full report is available online at http://www.who.int/csr/don/2014_04_14_h7n9/en/.

International, Human (WHO [edited], April 15): The Centre for Health Protection (CHP), Hong Kong, SAR, China and the National Health and Family Planning Commission (NHFPC) of China recently notified WHO of 2 additional laboratory-confirmed cases of human infection with avian influenza A(H7N9) virus.

The full report is available online at http://www.who.int/csr/don/2014_04_15_h7n9/en/.

International, Human (WHO [edited], April 16): On 15 April 2014, the National Health and Family Planning Commission (NHFPC) of China notified WHO of an additional laboratory-confirmed case of human infection with avian influenza A(H7N9) virus.

The full report is available online at http://www.who.int/csr/don/2014_04_16_h7n9/en/.

International, Poultry (OIE [edited], April 13): Highly pathogenic avian influenza H5; Japan
Outbreak 1: Kuma-gun, Taragi-machi, KUMAMOTO; Date of start of the outbreak: 11/04/2014
Epidemiological unit: Farm; Affected population: poultry (broiler)
Species: Birds; Susceptible: 56400; Cases: 200; Deaths: 200; Destroyed: 56200

International, Poultry (OIE [edited], April 16): High path avian influenza H5N1; Korea (Dem People's Rep)
Outbreak 1: Hadang chicken factory, Hyongjesan, P'YONGYANG-SI; Date of start of outbreak: 21/03/2014
Epidemiological unit: Farm; Affected population: Three layer cages affected
Species: Birds; Susceptible: 46217; Cases: 46217; Deaths: 46217

Outbreak 2: Sopo chicken factory, P'YONGYANG-SI; Date of start of the outbreak: 27/03/2014
Epidemiological unit: Farm; Affected population: Chickens in one cage began to die on 27 March.

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.

For questions or to be added to the distribution list, please contact Susan Peters at peterss1@michigan.gov

MDCH Contributors

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Table. H5N1 Influenza in Humans – As of January 24, 2014. http://www.who.int/influenza/human_animal_interface/EN_GIP_20130124_CumulativeNumberH5N1cases.pdf. Downloaded 02/05/2014. Cumulative lab-confirmed cases reported to WHO. Total cases include deaths.

Country	2003-2010		2011		2012		2013		2014		Total	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Azerbaijan	8	5	0	0	0	0	0	0	0	0	8	5
Bangladesh	1	0	2	0	3	0	1	1	0	0	7	1
Cambodia	10	8	8	8	3	3	26	14	0	0	47	33
Canada	0	0	0	0	0	0	1	1	0	0	1	1
China	40	26	1	1	2	1	2	2	0	0	45	30
Djibouti	1	0	0	0	0	0	0	0	0	0	1	0
Egypt	119	40	39	15	11	5	4	3	0	0	173	63
Indonesia	171	141	12	10	9	9	3	3	0	0	195	163
Iraq	3	2	0	0	0	0	0	0	0	0	3	2
Lao PDR	2	2	0	0	0	0	0	0	0	0	2	2
Myanmar	1	0	0	0	0	0	0	0	0	0	1	0
Nigeria	1	1	0	0	0	0	0	0	0	0	1	1
Pakistan	3	1	0	0	0	0	0	0	0	0	3	1
Thailand	25	17	0	0	0	0	0	0	0	0	25	17
Turkey	12	4	0	0	0	0	0	0	0	0	12	4
Vietnam	119	59	0	0	4	2	2	1	1	1	126	63
Total	516	306	62	34	32	20	39	25	1	1	650	386