



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 April 6-12, influenza activity continued to decrease in most U.S. regions

Updates of Interest:

- **International:** Additional MERS-CoV cases, including a travel-related case from Greece, are reported by WHO

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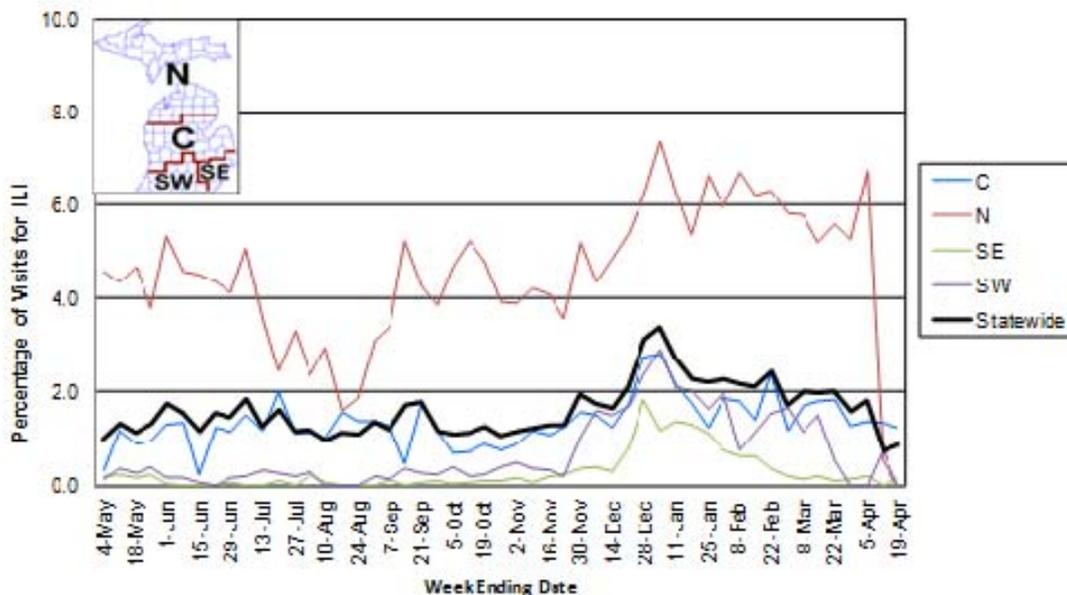
Influenza Surveillance Reports

Michigan Disease Surveillance System (as of April 24): MDSS influenza data for the week ending April 19, 2014 indicated that compared to levels from the previous week, individual reports remained steady while aggregate reports slightly increased. Aggregate reports are moderately lower than levels seen during the same time period last year, while individual reports are slightly lower.

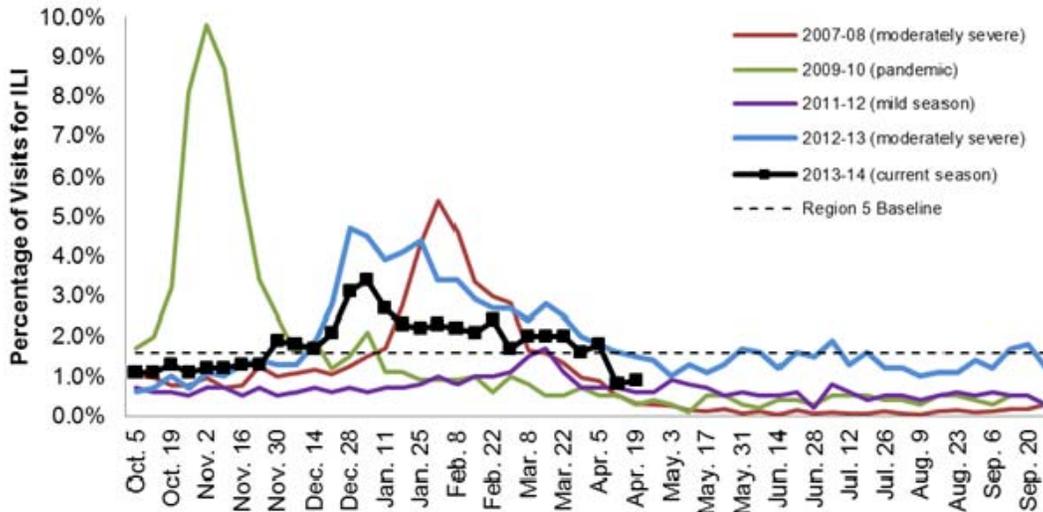
Emergency Department Surveillance (as of April 24): Emergency department visits due to both constitutional and respiratory complaints minimally decreased during the week ending April 19, 2014. Emergency department visits from both constitutional and respiratory complaints are similar to levels during the same time period last year and are at fall/winter baseline levels. In the past week, there were 2 constitutional alerts in the SW(1) and N(1) Influenza Surveillance Regions and 2 respiratory alerts in the C(2) Region.

Sentinel Provider Surveillance (as of April 24): During the week ending April 19, 2014, the proportion of visits due to influenza-like illness (ILI) increased to 0.9% overall; this is below the regional baseline (1.6%). A total of 53 patient visits due to ILI were reported out of 6,178 office visits. Data were provided by 21 sentinel sites from the following regions: Central (12), North (2), Southeast (5), and Southwest (2). ILI activity decreased in three regions: C (1.2%), N (0.0%), and SW (0.0%) and increased in one region: SE (0.1%). 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 24): 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. 1 new case (1 adult) was identified since the last report. As of April 24th, there have been 227 influenza hospitalizations (67 pediatric, 160 adult) within the catchment area. Based on these counts, within the catchment area there are 32.1 pediatric influenza hospitalizations/100,000 population and 23.5 adult influenza hospitalizations/100,000.

The MDCH Influenza Sentinel Hospital Network monitors influenza hospitalizations reported voluntarily by hospitals statewide. 7 hospitals (SE,SW,C,N) reported for the week ending April 19, 2014. Results are listed in the table below.

Age Group	Hospitalizations Reported During the Previous Week	Total Hospitalizations 2013-14 Season
0-4 years	0	53 (7SE,2SW,44C,4N)
5-17 years	0	21 (1SE,20C)
18-49 years	0	117 (63SE,4SW,41C,9N)
50-64 years	2 (1SE,1N)	140 (88SE,5SW,31C,16N)
≥65 years	0	117 (73SE,7SW,15C,22N)
Total	2 (1SE,1N)	452 (232SE,18SW,151C,51N)

Laboratory Surveillance (as of April 19): During April 13-19, 2 positive 2009 A/H1N1pdm (2SW), 4 A/H3 (3SW,1C) and 1 influenza B (1SE) results were reported by MDCH Bureau of Laboratories. For the 2013-14 season (starting Sept. 29, 2013), MDCH has identified 373 positive influenza results:

- Influenza 2009 A/H1N1pdm: 339 (76SE,132SW,94C,38N)
- Influenza A/H3: 17 (10SE,5SW,2C)
- Influenza A unsubtypeable: 1 (1SE)
- Influenza A and B (LAIV recovery): 1 (1SE)
- Influenza B: 15 (8SE,2SW,4C,1N)
- RSV: 2 (2SW)
- Adenovirus: 1 (1SE)
- Parainfluenza: 2 (1SE,1SW)
- Human metapneumovirus: 4 (4SW)

9 sentinel labs (SE,SW,C) reported for the week ending April 19, 2014. 6 labs (SE,C) had low flu A activity. 5 labs (SE,SW,C) had flu B activity, with one lab (SE) reporting predominantly flu B. 6 labs (SE,SW,C) had sporadic RSV activity. 1 lab (SE) had sporadic parainfluenza activity. 2 labs (SE,SW) had sporadic hMPV activity. 1 lab (SE) had sporadic adenovirus activity. Testing volumes are low to moderate and declining.

Michigan Influenza Antigenic Characterization (as of April 24): 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 24): 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>.

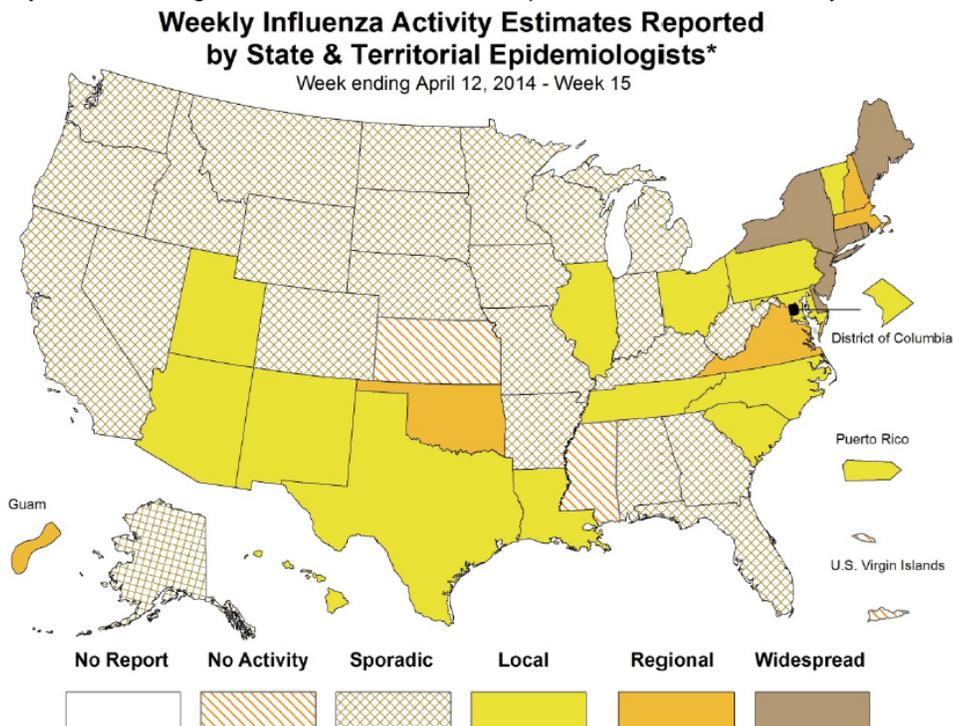
Influenza-associated Pediatric Mortality (as of April 24): 2 pediatric influenza-associated influenza mortalities (1SE,1C) have been reported to MDCH for the 2013-14 season.

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_pediatric_influenza_guidance_v2_214270_7.pdf.

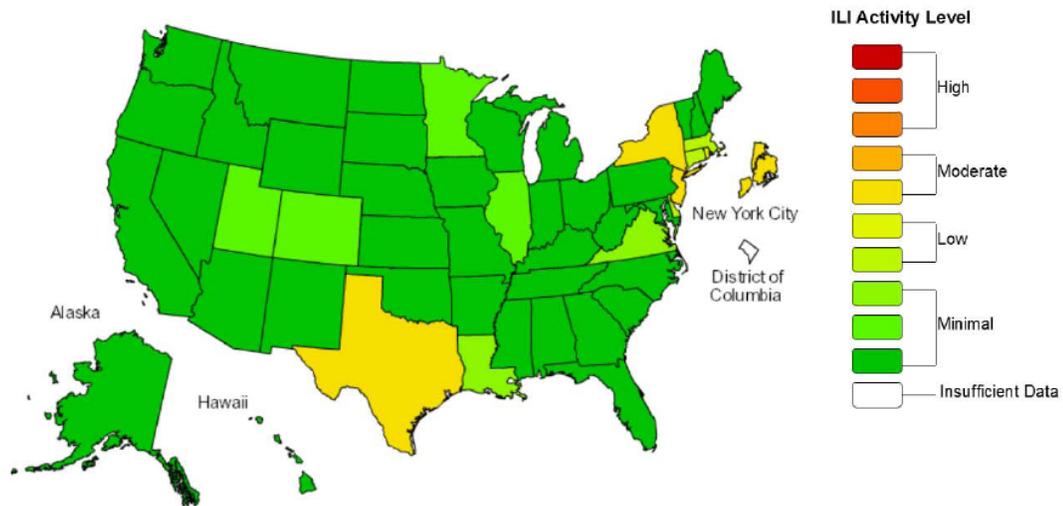
Influenza Congregate Settings Outbreaks (as of April 24): 17 respiratory outbreaks (2SE,8SW,6C,1N) have been reported to MDCH during the 2013-14 season:

- 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 18): During week 15 (April 6-12, 2014), influenza activity continued to decrease in most regions of the United States. Of 4,653 specimens tested and reported during week 15 by U.S. WHO and NREVSS collaborating laboratories, 675 (14.5%) were positive for influenza. The proportion of deaths attributed to pneumonia and influenza was below the epidemic threshold. One influenza-associated pediatric death was reported. A season-cumulative rate of 33.2 laboratory confirmed influenza-associated hospitalizations per 100,000 population was reported. The proportion of outpatient visits for influenza-like illness (ILI) was 1.5%, which is below the national baseline of 2.0%. Two of 10 regions reported ILI at or above region-specific baseline levels. Three states and New York City experienced moderate ILI activity; four states experienced low ILI activity; 43 states experienced minimal ILI activity, and the District of Columbia had insufficient data. The geographic spread of influenza in six states was reported as widespread; Guam and four states reported regional influenza activity; the District of Columbia, Puerto Rico and 14 states reported local influenza activity; 24 states reported sporadic influenza activity; the U.S. Virgin Islands and two states reported no influenza activity.



Influenza-Like Illness (ILI) Activity Level Indicator Determined by Data Reported to ILINet
2013-14 Influenza Season Week 15 ending Apr 12, 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.

	Week 15
No. of specimens tested	4,653
No. of positive specimens (%)	675 (14.5%)
<i>Positive specimens by type/subtype</i>	
Influenza A	301 (44.6%)
2009 H1N1	20 (6.6%)
H3	138 (45.8%)
Subtyping not performed	143 (47.5%)
Influenza B	374 (55.4%)

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

International (WHO [edited], April 22): Globally, the northern hemisphere influenza season appeared to be approaching interseasonal levels in most countries. As influenza detections declined, the proportion of influenza B detections increased slightly in many regions, especially Asia, the Middle East, and North America. In North America, influenza levels continued to decline. Late season circulation of influenza B continued; however, the overall numbers of detections remained low. In Europe, activity continued to decrease, as the region appeared to be coming to an end of the influenza season. A rise in the percentage of influenza specimens testing positive was observed, but the overall number of specimens declined. Influenza A(H3N2) and A(H1N1)pdm09 co-circulated, with low numbers of B virus detected. In eastern Europe, activity was higher later in the season compared to the north and the south-west, but detections have begun to decline as well. In Eastern Asia, activity approached interseasonal levels, and influenza B comprised the majority of influenza detections. In Tropical Asia, activity continued to decline. In Northern Africa and Western Asia, activity remained low in most countries, with influenza B the predominant virus detected. In the Southern Hemisphere, activity remained low and detections were sporadic. Based on FluNet reporting (as of 15 April 2014), during weeks 13 to 14 (23 March to 5 April 2014), National Influenza Centres and other national influenza laboratories from 82 countries, areas or territories reported data. The WHO GISRS laboratories tested more than 44319 specimens. 6717 were positive for influenza viruses, of which 4163 (62%) were typed as influenza A and 2554 (38%) as B. Of the sub-typed A viruses, 1149 (47.2%) were A(H1N1)pdm09 and 1287 (52.8%) were A(H3N2). Of the characterized B viruses, 224 (83%) belong to the B-Yamagata lineage and 46 (17%) 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 17): On 17 April 2014, the Ministries of Health of Malaysia and the United Arab Emirates (UAE) reported an additional 5 laboratory-confirmed cases of infection with Middle East respiratory syndrome coronavirus (MERS-CoV).

The following details were provided to WHO by the Ministry of Health, Malaysia on 17 April 2014: The patient is a 54 year-old man with underlying health conditions. He travelled to Jeddah, Saudi Arabia with a pilgrimage group of 18 people from 15 to 28 March 2014 and became ill on 4 April. He sought treatment in a private clinic in Johor, Malaysia on 7 April and went to a hospital on 9 April. The patient died on 13 April. The patient visited a camel farm on 26 March, during which he consumed camel milk.

This is the first case with MERS-CoV infection in the country. The Ministry of Health reported that so far no human-to-human transmission has been observed amongst close contacts and in health-care facilities in Malaysia.

The following details were provided to WHO by the Ministry of Health, UAE on 17 April 2014: A cluster of four health-care workers were identified through screening of contacts of a previously laboratory-confirmed case from Abu Dhabi who died on 10 April 2014. These include:

- A 44 year-old man from Abu Dhabi who was screened on 13 April. He had no illness and is reported to have no underlying medical condition.
- A 30 year-old man from Abu Dhabi who was screened on 13 April. He had no illness and is reported to have no underlying medical condition.
- A 34 year-old man from the Philippines who resides in Abu Dhabi. He was screened on 13 April without any illness and is reported not to have any underlying medical condition.
- A 28 year-old man from Abu Dhabi who became ill on 14 April 2014. He is reported to have no underlying medical condition.

All the above mentioned cases are known to have exposure to a previously laboratory-confirmed case. They have no reported history of recent travel and no contact with animals. Three cases are in isolation in a hospital and are in a stable condition. One case returned to his home country although he was advised not to before the laboratory results were received. Screening of other health care contacts and of family members is ongoing.

The full report is available online at http://www.who.int/csr/don/2014_04_17_mers/en/.

International, MERS-CoV (WHO [edited], April 20): On 18 April 2014, the Ministry of Health of Greece reported 1 laboratory-confirmed case of infection with Middle East respiratory syndrome coronavirus (MERS-CoV).

The following details were provided to WHO by the Ministry of Health, Greece, on 18 April 2014: The patient is a 69 year-old male Greek citizen residing in Jeddah, Saudi Arabia, who travelled back to Greece on 17 April. While in Jeddah, the patient consulted a hospital on 8 and 10 April for a febrile illness with diarrhoea, and was given a probable diagnosis of typhoid fever. Of note, he regularly visited his wife who was hospitalised from 31 March to 5 April in the same hospital for a confirmed typhoid fever.

The patient sought medical care upon arrival in Greece on 17 April. The evaluation revealed a bilateral pneumonia and the diagnosis of MERS-CoV infection was made at the National Reference Laboratory for Influenza. The patient is in stable condition and is receiving appropriate treatment.

This is the first case of MERS-CoV infection in the country.

Individuals who had close contacts with the case in the plane, the hospital in Greece and in the community have been identified and are being followed up. So far, none of the contacts became ill. Hellenic health authorities issued a press release to inform the population and informed all Greek hospitals on measures that need be taken to identify suspect patients and implement appropriate preventive measures.

Globally, from September 2012 to date, WHO has been informed of a total of 250 laboratory-confirmed cases of infection with MERS-CoV, including 93 deaths.

The full report is available online at http://www.who.int/csr/don/2014_04_20_mers/en/.

International, MERS-CoV (WHO [edited], April 23): On 21 April 2014, 18 April 2014 and 16 April 2014, the Ministry of Health of the United Arab Emirates (UAE) reported an additional 9 laboratory-confirmed cases of infection with Middle East respiratory syndrome coronavirus (MERS-CoV).

The following details were provided to WHO on 21 April 2014 by the Ministry of Health UAE:

- A 52 year-old woman from Abu Dhabi. She became ill and was admitted to a hospital on 16 April. She has underlying medical conditions and is currently in a stable condition. The patient travelled to Jeddah, Saudi Arabia from 5-16 April, where she visited the hospital 3 times. She has no history of contact with animals. All her contacts are being investigated.
- The following details were provided to WHO on 18 April by the Ministry of Health UAE:
- A 63 year-old woman from Abu Dhabi who had close contact with a previously laboratory-confirmed case reported on 14 April. She was screened on 13 April and became ill on 15 April. She is reported to have an underlying medical condition. She is reported to have no exposure to animals or a recent travel history.
- A 73 year-old woman from Abu Dhabi who has been an in-patient at the hospital since 26 February due to other illnesses. She has underlying medical conditions. The patient was admitted to the intensive care unit (ICU) on 14 April. She is reported to have no exposure to animals or a recent travel history.

Globally, from September 2012 to date, WHO has been informed of a total of 253 laboratory-confirmed cases of infection with MERS-CoV, including 93 deaths.

The full report is available online at http://www.who.int/csr/don/2014_04_23_mers/en/.

International, MERS-CoV (WHO [edited], April 24): On 22 April 2014, the Ministry of Health of Jordan reported an additional laboratory-confirmed case of infection with Middle East respiratory syndrome coronavirus (MERS-CoV).

The patient is a 25 year-old man from Al Grayat City, Saudi Arabia. He became ill on 9 April, was admitted to a hospital in Saudi Arabia on 10 April and discharged from the hospital on 15 April, against medical advice. As his condition did not improve, he sought medical care at another hospital in Zarka City, Jordan on 19 April, where he was tested positive for MERS-CoV. The patient has underlying medical conditions and has a history of travel to Abha Mecca and Jeddah, Saudi Arabia from 3 to 8 April. He has history of contact with camels and is also reported to have consumed camel milk.

Globally, from September 2012 to date, WHO has been informed of a total of 254 laboratory-confirmed cases of infection with MERS-CoV, including 93 deaths.

The full report is available online at http://www.who.int/csr/don/2014_04_24_mers/en/.

International, Human (WHO [edited], April 24): On 23, 20 and 17 April 2014, the National Health and Family Planning Commission (NHFPC) of China notified WHO of 6 additional laboratory-confirmed cases of human infection with avian influenza A(H7N9) virus.

Details of the cases reported on 23 April 2014 are as follows:

- A 35 year-old health-care worker from Wuxi City, Jiangsu Province. She became ill on 10 April, was admitted to a hospital on 14 April and is currently in a critical condition.
- A 50 year-old man from Yongzhou City, Hunan province. He became ill on 10 April, was admitted to a hospital on 19 April and is currently in a critical condition.

Details of the cases as reported on 21 April 2014 are as follows:

- A 34 year-old man from Wuxi City, Jiangsu Province. He became ill on 10 April, was admitted to a hospital on 16 April, and is currently in a critical condition.
- A 55 year-old woman from Shantou City, Guangdong Province. She became ill on 6 April, was admitted to a local hospital on 17 April, and is currently in a critical condition.

Details of the cases notified on 17 April 2014 are as follows:

- A 60 year-old man from Changzhou City, Jiangsu Province. He became ill on 8 April, was admitted to a hospital on 13 April, and is currently in a severe condition. He had a history of contact with poultry before he became ill.
- A 70 year-old man from Tongling City, Anhui Province. He became ill on 21 March, was admitted to a hospital on 25 March, and died on 14 April.

The full report is available online at http://www.who.int/csr/don/2014_04_24_h7n9/en/.

International, Poultry (OIE [edited], April 22): High path avian influenza H5N1; Korea (Dem. People's Rep.)
 Outbreak 1: Ryonggung ri, Hwangju county, HWANGHAE-BUKTO; Date of start of outbreak: 10/04/2014
 Epidemiological unit: Village; Affected population: Chickens and geese
 Species: Birds; Susceptible: 501; Cases: 501; Deaths: 136; Destroyed: 365

International, Poultry (OIE [edited], April 22): Low path avian influenza H5; United States of America
 Outbreak 1: Stanislaus County, Stanislaus, CALIFORNIA; Date of start of the outbreak: 14/04/2014
 Affected population: The affected premises is a commercial Japanese quail (*Coturnix japonica*) layer flock. The quail flock consists of two (2) houses. The affected layer house contains approximately 56,000 adult quail. The brooder house contains approximately 39,000 quail. There are nine (9) additional houses on the premises that house Peking ducks for egg production and contain approximately 21,000 ducks.

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
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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