



MI Flu Focus

Influenza Surveillance Updates
Bureaus of Epidemiology and Laboratories

Michigan Department
of Community Health



Rick Snyder, Governor
James K. Haveman, Director

Editor: Susan Peters, DVM, MPH peterss1@michigan.gov
Surveillance and Infectious Disease Epidemiology

May 15, 2014
Vol. 11; No. 28

Current Influenza Activity Levels:

- **Michigan:** Sporadic influenza activity
- **National:** During April 27-May 3, influenza activity continued to decrease in the U.S.

Updates of Interest:

- **International:** Multiple new MERS-CoV cases are reported, including the 2nd travel-related U.S. case

Table of Contents

Influenza Surveillance Reports	
Michigan.....	1-3
National.....	3-4
International.....	4
Novel Influenza and Other News	
WHO Pandemic Phase.....	4
MERS-CoV.....	4-7
Avian Influenza in Humans.....	7-8

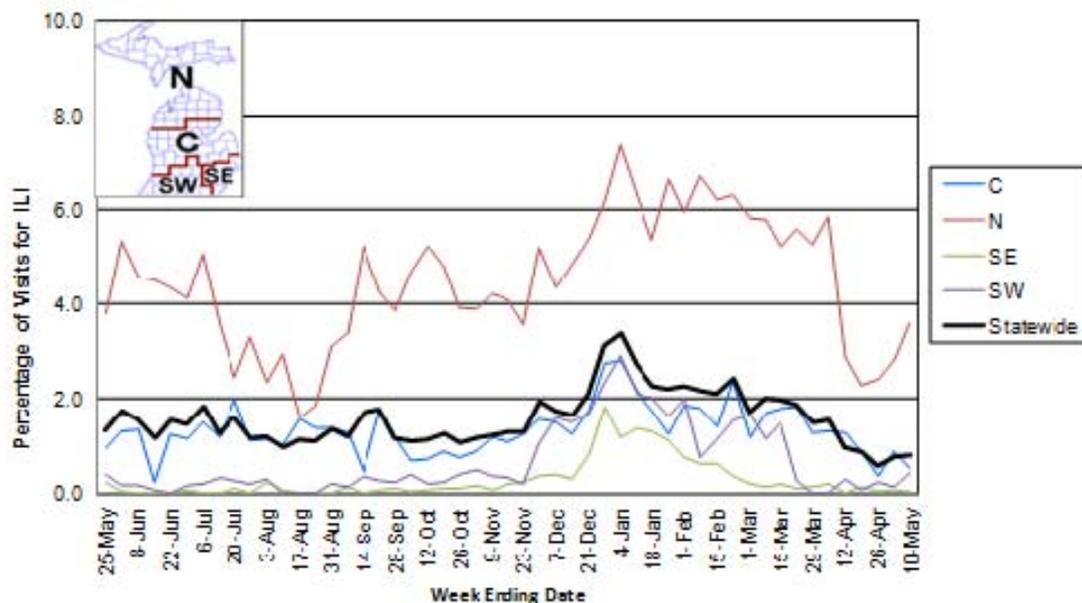
Influenza Surveillance Reports

Michigan Disease Surveillance System (as of May 15): MDSS influenza data for the week ending May 10, 2014 indicated that compared to levels from the previous week, both aggregate and individual reports remained steady. Aggregate reports are moderately lower than levels seen during the same time period last year, while individual reports are slightly lower.

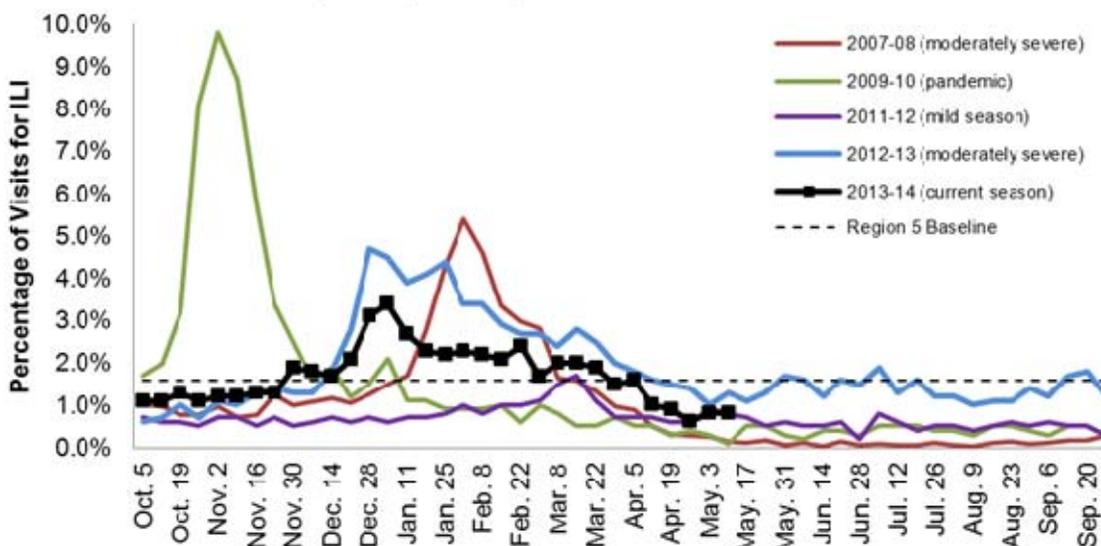
Emergency Department Surveillance (as of May 15): Emergency department visits due to both constitutional and respiratory complaints remained steady during the week ending May 10, 2014. Emergency department visits from both constitutional and respiratory complaints are similar to levels during the same time period last year. In the past week, there were 5 constitutional alerts in the SW(1), C(3) and N(1) Influenza Surveillance Regions and 2 respiratory alerts in the C(2) Region.

Sentinel Provider Surveillance (as of May 15): During the week ending May 10, 2014, the proportion of visits due to influenza-like illness (ILI) remained the same at 0.8% overall; this is below the regional baseline (1.6%). A total of 52 patient visits due to ILI were reported out of 6,512 office visits. Data were provided by 20 sentinel sites from the following regions: Central (8), North (2), Southeast (8), and Southwest (2). ILI decreased in two regions: C (0.5%) and SE (0.0%) and increased in two regions: N (3.6%) and SW (0.4%). 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 May 15): 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 and ending April 30, 2014, for Clinton, Eaton, Genesee, and Ingham counties. As of May 15th, there have been 232 influenza hospitalizations (69 pediatric, 163 adult) within the catchment area. Based on these counts, within the catchment area there are 33.0 pediatric influenza hospitalizations/100,000 population and 23.9 adult influenza hospitalizations/100,000.

The MDCH Influenza Sentinel Hospital Network monitors influenza hospitalizations reported voluntarily by hospitals statewide. Reporting for the 2013-14 season has concluded. 458 hospitalizations were reported during September 29, 2013-April 26, 2014.

Laboratory Surveillance (as of May 10): During May 4-10, 3 A/H3 (1SE, 2SW) and 7 influenza B (6SW,1N) results were reported by MDCH Bureau of Laboratories. For the 2013-14 season (starting Sept. 29, 2013), MDCH has identified 391 positive influenza results:

- Influenza 2009 A/H1N1pdm: 340 (77SE,132SW,94C,38N)
- Influenza A/H3: 24 (12SE,9SW,3C)
- Influenza A unsubtypeable: 1 (1SE)
- Influenza A and B (LAIV recovery): 1 (1SE)
- Influenza B: 30 (8SE,13SW,5C,4N)
- RSV: 2 (2SW)
- Adenovirus: 2 (1SE,1SW)
- Parainfluenza: 3 (1SE,2SW)
- Human metapneumovirus: 4 (4SW)

10 sentinel labs (SE,SW,C) reported for the week ending May 10, 2014. 6 labs (SE,SW,C) reported low influenza A activity. 6 labs (SE,SW,C) reported low influenza B activity, with two labs (SW,C) reporting only influenza B activity. 3 labs (SE,SW) reported sporadic RSV activity. 1 lab (SE) reported sporadic parainfluenza activity. 1 lab (SE) reported low hMPV activity. 2 labs (SE,SW) had low adenovirus activity. Testing volumes are low to moderate.

Michigan Influenza Antigenic Characterization (as of May 15): 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. 11 specimens (8SE,2SW,1C) 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 May 15): For the 2013-14 season, 123 2009 A/H1N1pdm (33SE,37SW,41C,12N) and 15 A/H3 (6SE,7SW,2C) 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 May 15): 1 new pediatric influenza mortality was reported during the past week. This case was an infant from the Central Region with underlying medical conditions that was too young for influenza vaccination; the death was in April and related to an influenza A virus. 3 pediatric influenza-associated influenza mortalities (1SE,2C) have been reported to MDCH for the 2013-14 season.

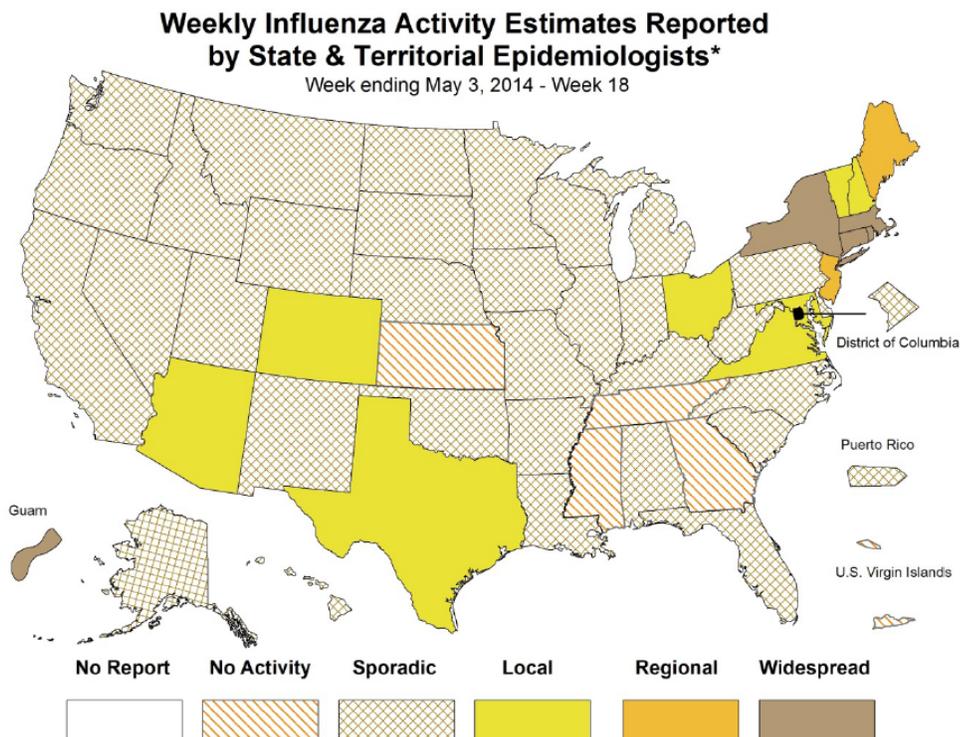
CDC requires reporting of flu-associated pediatric deaths (<18 yrs), including pediatric deaths due to an influenza-like illness with lab confirmation of influenza or any unexplained pediatric death with evidence of an infectious process. Contact MDCH immediately for proper specimen collection. The MDCH protocol is at www.michigan.gov/documents/mdch/ME_pediatric_influenza_guidance_v2_214270_7.pdf.

Influenza Congregate Settings Outbreaks (as of May 15): No new outbreaks were reported during the previous week. 19 respiratory outbreaks (2SE,9SW,6C,2N) have been reported to MDCH during the 2013-14 season:

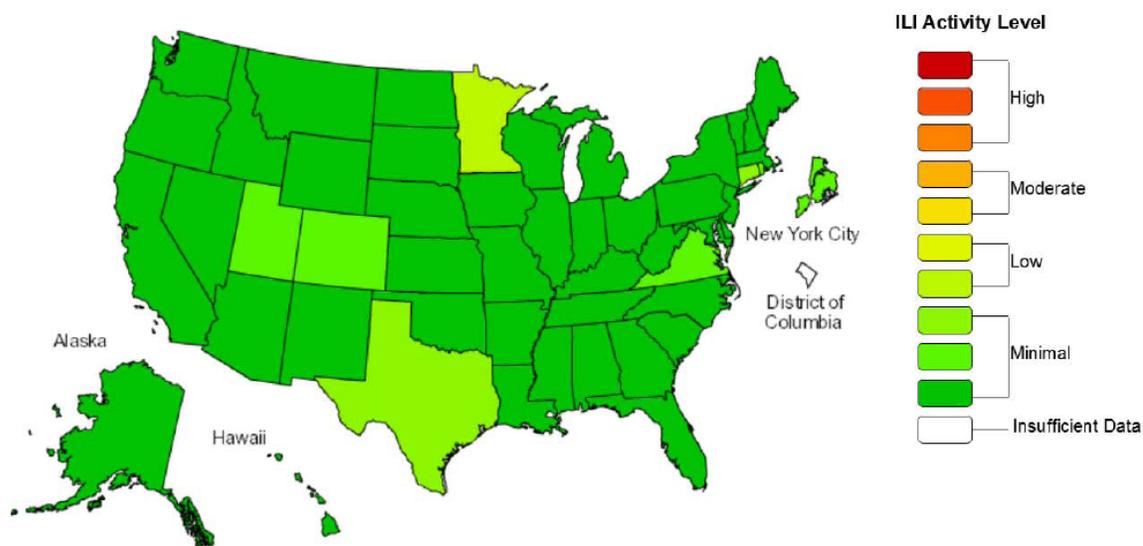
- Influenza 2009 A/H1N1pdm: 4 (1SE,2SW,1C)
- Influenza A/H3: 1 (1SW)
- Influenza A: 4 (3SW,1C)
- Influenza B: 2 (1SW,1N)
- Influenza positive: 1 (1SW)
- Human metapneumovirus: 2 (1SE,1N)
- RSV: 1 (1SW)
- Negative/no testing: 4 (4C)

National (CDC [edited], May 9): During week 18 (April 27-May 3, 2014), influenza activity continued to decrease in the United States. Of 3,692 specimens tested and reported during week 18 by U.S.WHO and NREVSS collaborating laboratories, 460 (12.5%) were positive for influenza. The proportion of deaths attributed to pneumonia and influenza (P&I) was below the epidemic threshold. No influenza-associated pediatric deaths were reported. A season-cumulative rate of 35.4 laboratory confirmed influenza-associated hospitalizations per 100,000 population was reported. The proportion of outpatient visits for influenza-like illness (ILI) was 1.2%, which is below the national baseline of 2.0%. All regions reported ILI below region-specific baseline levels. One state experienced low ILI activity; 49 states and New York City experienced minimal ILI activity, and the District of Columbia had insufficient data. The geographic spread of influenza in Guam and four states was reported as widespread; two states reported regional influenza activity; eight states reported local influenza activity; the District of Columbia, Puerto Rico, and 32 states reported sporadic influenza activity, and the U.S. Virgin Islands and four states reported no activity.

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



**Influenza-Like Illness (ILI) Activity Level Indicator Determined by Data Reported to ILINet
2013-14 Influenza Season Week 18 ending May 03, 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.

International (WHO [edited], May 5): Globally, the northern hemisphere influenza season approached inter-seasonal levels in most countries. Influenza B continued to comprise the majority of late season detections in most regions, with the exception of Europe which reported consistently low influenza B activity. In North America, influenza levels slowly declined. In Europe, influenza activity continued to decrease, and most countries either approached or reached interseasonal levels. Influenza A(H3N2) was the predominant virus, followed by A(H1N1)pdm09 and very low detections of influenza B. In eastern Europe, influenza activity declined but remained slightly elevated compared to southwest and northern Europe, which peaked earlier in the season. In Eastern Asia, influenza activity approached interseasonal levels in most countries, and influenza B comprised the majority of influenza detections. In Tropical Asia, influenza activity continued to decline in most countries, although some variability was seen. In Northern Africa and Western Asia, influenza activity remained low in most countries, with influenza B the predominant virus detected. In the Southern Hemisphere, influenza activity was still low and influenza detections were sporadic.

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 May 10, 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], May 15): The following cases of laboratory confirmed Middle East respiratory syndrome coronavirus (MERS-CoV) have been reported from Jordan, Lebanon, the Netherlands, the United Arab Emirates, and the United States.

Netherlands

On 14 May 2014, the National IHR Focal Point for the Netherlands notified WHO of the first laboratory confirmed case of MERS-CoV infection in the Netherlands. The patient is a 70 year-old male citizen of the Netherlands, with travel history to the Kingdom of Saudi Arabia between 26 April 2014 and 10 May 2014.

The patient developed first symptoms on 1 May 2014 while in Medina, Saudi Arabia. He was evaluated at an emergency care department in Mecca on 6 May and given antibiotics; he did not have respiratory symptoms while in Saudi Arabia. On return to the Netherlands, on 10 May, his condition deteriorated, including development of respiratory symptoms, and he was hospitalized on the same day. On 13 May, he tested positive for MERS-CoV. Currently, the patient is in the ICU in a stable condition.

The patient reports no contact with animals or consumption of raw animal products. Identification of close contacts, including flight contacts has been initiated.

United States of America

On 12 May 2014, the United States IHR National Focal Point reported the second laboratory confirmed MERS-CoV infection in the United States in a male health-care worker in his 40s, who lives and works in Jeddah, Saudi Arabia.

He travelled to the United States from Jeddah on 1 May 2014 on commercial flights via London Heathrow with travel from London to Boston, Massachusetts; from Boston to Atlanta, Georgia; and from Atlanta to Orlando, Florida.

He began feeling unwell on 1 May 2014 on the flight from Jeddah to London with a low-grade fever, chills, and a slight cough. On 9 May 2014, he was seen in an emergency room and hospitalized. The patient is in a stable condition.

The Division of Global Migration and Quarantine (DGMQ) from the US Centers for Disease Control and Prevention (CDC) continues to work with local, state, and international partners, as well as with the airlines to obtain the passenger manifests from the flights to help identify, locate, and interview contacts.

United Arab Emirates

On 11 May 2014, the National IHR Focal Point of the United Arab Emirates reported nine additional MERS-CoV cases residing in Abu Dhabi. Two are UAE nationals, one is an Omani national, and six are of different nationalities but residing in Abu Dhabi.

- A 51-year old male Omani national, residing in Al Buraimi, Oman, developed fever on 18 April 2014. He was admitted to the hospital on 20 April 2014. On 23 April 2014 he tested positive for MERS-CoV. He is currently in hospital in isolation in a stable condition. The patient has comorbidities, no history of travel, no contact with animals, and no history of contact with a laboratory confirmed case of MERS-CoV. The IHR NFP for Oman was already informed about this case.
- A 39-year-old female health-care worker, residing in Abu Dhabi, who was screened as part of contact investigation. She was asymptomatic; MERS-CoV was confirmed by the laboratory on the 25 April 2014. She has a history of exposure to a confirmed case of MERS-CoV notified to WHO on 18 April 2014. She has no comorbidities, no history of travel, and no contact with animals.
- A 30-year old male UAE national, residing in Abu Dhabi. On 24 April 2014, he went to the emergency room with cough and shortness of breath, but he was clinically stable, and was treated as an outpatient. On 25 April, he tested positive for MERS-CoV. He is currently in hospital in a good general condition. The patient had reported comorbidities, no history of recent travel, no history of animal contact, and no history of contact with a laboratory confirmed case of MERS-CoV.
- A 42-years old male UAE national, residing in Abu Dhabi, who was asymptomatic and was screened as a contact of the first case in this notification. On 25 April 2014, he tested positive for MERS-CoV. He has no history of travel and no history of contact with animals.
- A 30-year old female health-care worker residing in Abu Dhabi. She had a sore throat on 15 April 2014; a sputum sample was taken on 16 April 2014 as part of a general screening of health-care workers following a cluster of cases in the hospital. She tested positive for MERS-CoV on the 17 April 2014 and was admitted to hospital the same day. She was discharged on the 22 April 2014. She has no comorbidity, no significant travel history, and no contact with animals.
- A 44-year old male health-care worker residing in Abu Dhabi. He had a mild sore throat that started on the 19 April 2014. He had contact on 13 April at a social gathering with a confirmed case reported to WHO on 17 April 2014. The patient tested positive for MERS-CoV on 21 April 2014 and was admitted to hospital on 22 April 2014. He was discharged on 1 May 2014. He has no comorbidities, no significant travel history, and no contact with animals.

- A 41-year old male hospital employee residing in Abu Dhabi. He was asymptomatic, but was screened without having contact with any case as part of a general screening at his work place. On 21 April, he tested positive for MERS-CoV and was admitted to hospital on 22 April. He was discharged on 27 April 2014. He has no comorbidities, no significant travel history, and no contact with animals
- A 68-year old male hospital employee residing in Abu Dhabi. He was asymptomatic, but was screened without having contact with any case as part of a general screening at his work place. On 23 April, he tested positive for MERS-CoV and was admitted to hospital on 24 April 2014 for isolation. He was discharged on 30 April 2014. He has reported comorbidities, has no significant travel history, and no contact with animals.
- A 45-year old male hospital employee residing in Abu Dhabi. He was asymptomatic, but was screened without having contact with any case as part of a general screening at his work place. On 26 April, he tested positive for MERS-CoV and was admitted to hospital on the same day for isolation. He was discharged on 1 May 2014. He has no comorbidities, no significant travel history, and no contact with animals.

On 8 May 2014, the National IHR Focal Point for the United Arab Emirates (UAE) reported an additional four laboratory-confirmed cases of infection with MERS-CoV.

- A 37 year-old male expatriate construction worker in Abu Dhabi who became ill on 23 April 2014 and was hospitalized on 29 April 2014. He tested positive for MERS-CoV on 1 May 2014 and is currently in the intensive care unit (ICU) in a critical but stable condition. He is reported to have no comorbidities, no history of travel, and no contact with laboratory confirmed cases or with animals.
- A 38 year-old female administrative officer in a health clinic from Abu Dhabi who became ill on 20 April 2014. She was admitted to hospital on 26 April 2014. Initial laboratory tests for MERS-CoV were negative for the virus, but a follow-up test on 27 April 2014 returned positive on 1 May 2014. Currently, the patient is in the ICU in a critical but stable situation. She has several comorbidities, but is also to have no history of travel, no contact with laboratory confirmed cases or with animals, and no history of raw camel milk consumption.
- A 61 year-old male expatriate tailor shop owner residing in Abu Dhabi. He has been hospitalized since 18 March 2014 as a case of atrial fibrillation and chronic obstructive pulmonary disease (COPD). Samples collected on 29 April 2014 and sent to the laboratory tested positive for MERS-CoV on 1 May 2014. Currently, he is in the ICU in a critical but stable condition. He is reported have no history of travel, no contact with laboratory confirmed cases or with animals, and no history of raw camel milk consumption.
- A 34 year-old female expatriate residing in Abu Dhabi. She is asymptomatic. She was detected through mass screening of her work place without being in contact with any known case. Samples collected on 29 April 2014 and sent to the laboratory tested positive for MERS-CoV on 1 May 2014. She is reported to have no comorbidities, no history of travel, and no contact with laboratory confirmed cases or with animals. She is a vegetarian and consumes only pasteurized dairy products.

One additional case not previously reported was provided to WHO on 8 April 2014 by the National IHR Focal Point for UAE:

A 59 year-old male farm employee residing in Abu Dhabi. The patient had onset of symptoms on 28 March 2014 with febrile illness. On 30 March 2014, he was admitted to hospital and was being treated in the ICU. On 3 April 2014, he was laboratory confirmed with MERS-CoV. He is reported to have had contact with an admitted laboratory confirmed case of MERS-CoV.

Public health authorities continued to carry out contact tracing and an epidemiological investigation. Further developments will be communicated when available.

Jordan

On 11 May 2014, the National IHR Focal Point for Jordan reported to WHO an additional case of MERS-CoV.

The case is a 50 year-old male health-care worker, Jordanian citizen, and resident of Zarka Governorate. He presented with symptoms on 7 May 2014. On 10 May his condition worsened and he was diagnosed with pneumonia after performing a chest X-ray. He was admitted to hospital the same day and tested positive for MERS-CoV. The patient has a history of contact with two MERS-confirmed cases. He is in a stable condition. He is reported to have no history of travel and no history of contact with animals.

Tracing and screening of six family members and 24 health-care workers for MERS-CoV is currently ongoing.

Lebanon

On 8 May, 2014, the National IHR Focal Point (NFP) of Lebanon reported the first laboratory-confirmed case of MERS-CoV infection.

On 22 April 2014, a 60 year-old male health-care worker and national of Lebanon complained of high-grade fever. On 27 April 2014, he was diagnosed with pneumonia and was admitted to the hospital on 30 April 2014. His symptoms included fever, dyspnoea, and productive cough. On 2 May 2014, he tested positive for MERS-CoV. He is reported to have comorbidities. He was in a stable condition in hospital and was released on 7 May 2014.

The patient is reported to have no contact with laboratory confirmed cases or with animals and no history of raw camel milk consumption. No history of travel was reported in the 14 days prior to onset of symptoms.

The patient is known to travel throughout the Gulf region, particularly to Kuwait, Saudi Arabia, and UAE; investigations into the patient's travel history are ongoing. His most recent travel was five weeks prior to symptom onset to UAE and eight weeks prior to symptom onset to Jeddah where he visited one of the hospitals that had been facing an upsurge of MERS-CoV cases.

Globally, 572 laboratory-confirmed cases of infection with MERS-CoV have officially been reported to WHO, including 173 deaths. The global total includes all of the cases reported in this update (18), plus 58 laboratory confirmed cases officially reported to WHO from Saudi Arabia between 5 and 9 May. WHO is working with Saudi Arabia for additional information on these cases and will provide further updates as soon as possible.

The full report is available online at http://www.who.int/csr/don/2014_05_15_mers/en/.

International, Human (WHO [edited], May 15): On 12 May 2014, the National Health and Family Planning Commission (NHFPC) of China notified WHO of five additional laboratory-confirmed cases of human infection with avian influenza A(H7N9) virus.

Details of the cases are as follows:

- A 23 year-old male from Leping City, Jiangxi Province. He had onset of symptoms on 14 April and was admitted to hospital on 27 April. He is currently in a mild condition. The patient had a history of exposure to live poultry.
- A 74 year-old female from Yueyang City, Hunan Province. She had onset of symptoms on 23 April and was admitted to a hospital on 29 April. She is currently in a severe condition. The patient had a history of exposure to live poultry.
- A 53 year-old female from Shenzhen City, Guangdong Province. She had onset of symptoms on 15 April and was admitted to a hospital on 28 April. She is currently in a mild condition. The patient had a history of exposure to live poultry.
- A 63 year-old male from Yanji City, Jilin Province. He had onset of symptoms on 27 April and was admitted to a hospital on 30 April. He is currently in a critical condition. No information was available on exposure.
- A 50 year-old male from Zhongshan City, Guangdong Province. He had onset of symptoms on 2 May and was admitted to a hospital on 6 May. He is currently in a critical condition. The patient had a history of exposure to live poultry.

The full report is online at http://www.who.int/csr/don/2014_05_15_h7n9/en/.

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

Bureau of Epidemiology – S. Bidol, MPH, S. DeVita, RN, MPH; Bureau of Labs – B. Robeson, MT, V. Vavricka, MS

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