



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:** Local influenza activity
- **National:** During February 23-March 1, flu activity continued to decrease in the U.S.

Updates of Interest:

- **International:** New human cases of avian influenza H5N1, avian influenza H7N9 and MERS-CoV reported during the past week

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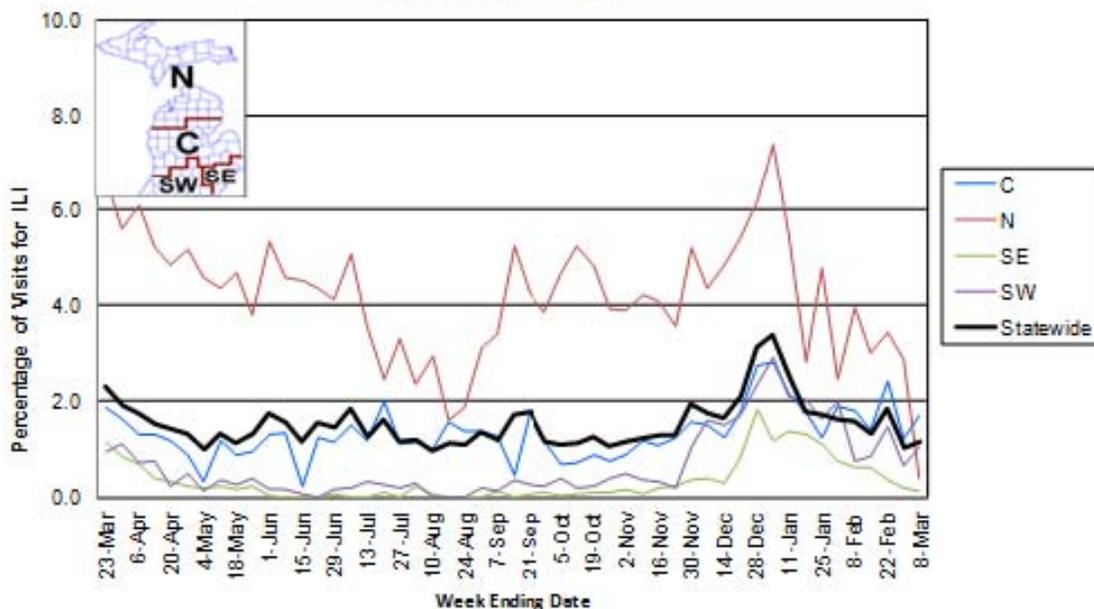
Influenza Surveillance Reports

Michigan Disease Surveillance System (as of March 13): MDSS influenza data for the week ending March 8, 2014 indicated that compared to levels from the previous week, aggregate reports remained steady and individual reports slightly decreased. Both individual and aggregate reports are significantly lower than levels seen during the same time period last year.

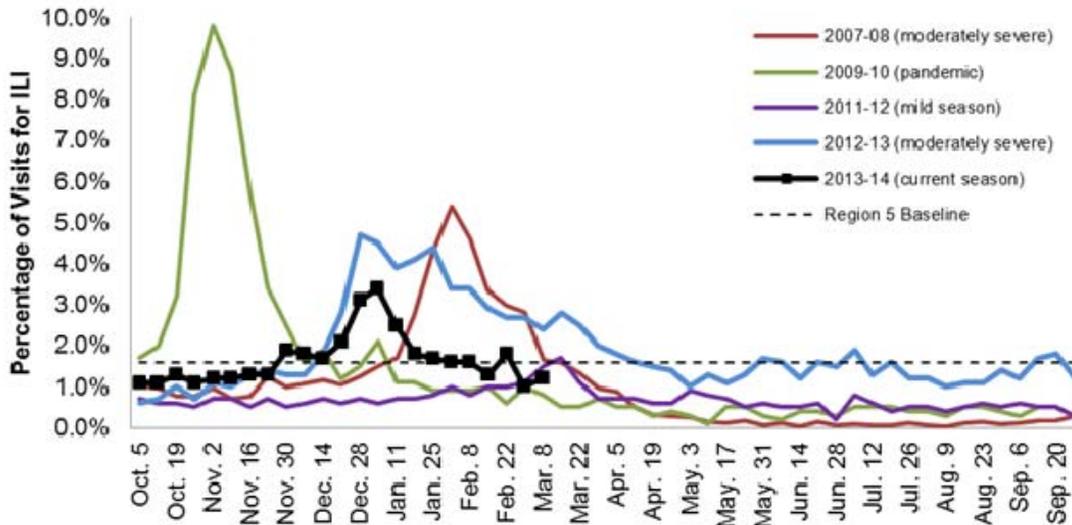
Emergency Department Surveillance (as of March 13): Emergency department visits due to both constitutional and respiratory complaints remained steady during the week ending March 8, 2014. Emergency department visits from both constitutional and respiratory complaints are moderately lower than levels during the same time period last year. Both are at fall/winter baseline levels. In the past week, there was 1 constitutional alert in the C Influenza Surveillance Region and no respiratory alerts.

Sentinel Provider Surveillance (as of March 13): During the week ending March 8, 2014, the proportion of visits due to influenza-like illness (ILI) increased to 1.2% overall; this is below the regional baseline (1.6%). A total of 105 patient visits due to ILI were reported out of 8,959 office visits. Data were provided by 30 sentinel sites from the following regions: Central (15), North (2), Southeast (10), and Southwest (3). ILI activity increased in two regions: C (1.7%) and SW (1.0%) and decreased in two regions: N (0.4%) and 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 March 13): 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. 2 new cases (2 adult) were identified since the last report. As of March 13th, there have been 208 influenza hospitalizations (56 pediatric, 152 adult) within the catchment area. Based on these counts, there are 27.9 pediatric influenza hospitalizations/100,000 population and 22.3 adult influenza hospitalizations/100,000 population within the catchment area.

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 March 8, 2014. Results are listed in the table below. Additional results from prior weeks have also been added to the totals.

Age Group	Hospitalizations Reported During the Previous Week	Total Hospitalizations 2013-14 Season
0-4 years	0	50 (7SE,2SW,38C,3N)
5-17 years	0	20 (1SE,19C)
18-49 years	1 (1N)	110 (61SE,3SW,37C,9N)
50-64 years	3 (3SE)	134 (86SE,5SW,30C,13N)
≥65 years	2 (1SE,1SW)	105 (68SE,7SW,14C,16N)
Total	6 (4SE,1SW,1N)	419 (223SE,17SW,138C,41N)

Laboratory Surveillance (as of March 8): During March 2-8, 7 influenza 2009 A/H1N1pdm (4SE,1SW,2C), 1 A/H3 (1SE) and 3 B (1SE,1C,1N) results were reported by MDCH Bureau of Laboratories. For the 2013-14 season (starting Sept. 29, 2013), MDCH has identified 350 positive influenza results:

- Influenza 2009 A/H1N1pdm: 322 (70SE,120SW,93C,38N)
- Influenza A/H3: 13 (10SE,2SW,1C)
- Influenza A unsubtypeable: 1 (1SE)
- Influenza A and B (LAIV recovery): 1 (1SE)
- Influenza B: 13 (7SE,2SW,3C,1N)
- Adenovirus: 1 (1SE)
- Parainfluenza: 2 (1SE,1SW)
- Human metapneumovirus: 4 (4SW)

13 sentinel labs (SE,SW,C,N) reported for the week ending March 8, 2014. 9 labs (SE,SW,C,N) had low or sporadic influenza A activity. 2 labs (SE) had sporadic flu B activity. 1 lab (SE) had sporadic parainfluenza activity. 12 labs (SE,SW,C,N) had steady or declining RSV activity. 4 labs (SE,SW,C) had hMPV activity. 2 labs (SE) had sporadic adenovirus activity. Most testing volumes were at low to moderate levels.

Michigan Influenza Antigenic Characterization (as of March 13): 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. 1 specimen (1C) has been characterized at CDC 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. 7 specimens (5SE,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 both the 2013-14 trivalent and quadrivalent vaccines.

Michigan Influenza Antiviral Resistance Data (as of March 13): For the 2013-14 season, 104 2009 A/H1N1pdm (25SE,29SW,38C,12N) and 8 A/H3 (5SE,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>.

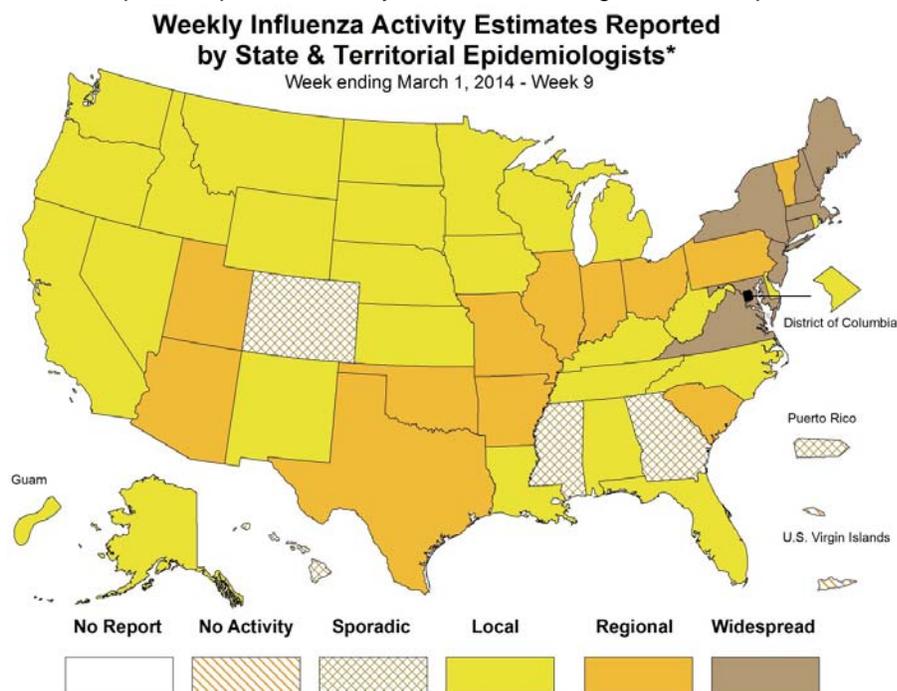
Influenza-associated Pediatric Mortality (as of March 13): 2 pediatric influenza-associated influenza mortalities (1SE,1C) have been reported to MDCH for the 2013-14 season.

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.

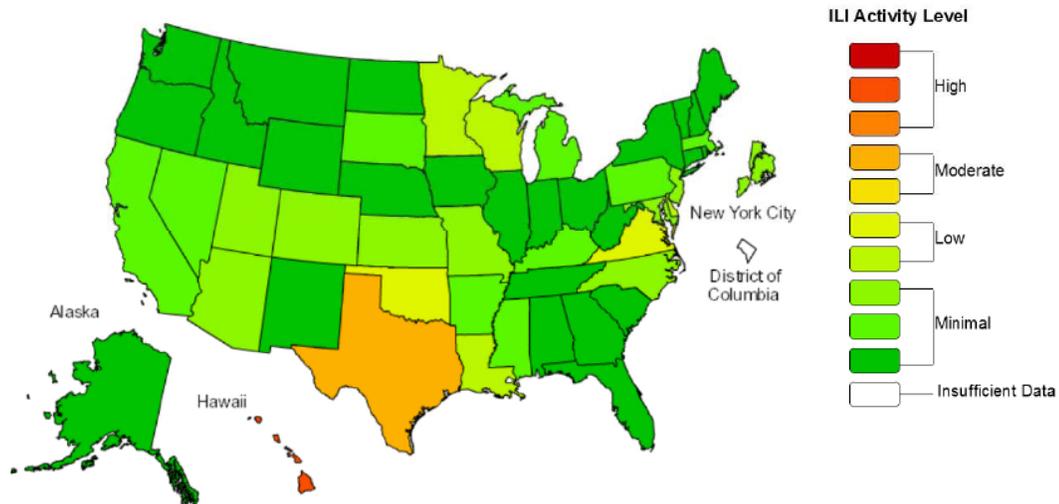
Influenza Congregate Settings Outbreaks (as of March 13): One new respiratory outbreak in a correctional facility (SE) was reported to MDCH during the previous week; an investigation is underway. One previously reported respiratory outbreak (1SW) in a long-term care facility was confirmed to be due to RSV. 15 respiratory outbreaks (1SE,8SW,5C,1N) have been reported during the 2013-14 season:

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

National (CDC [edited], March 7): During week 9 (February 23-March 1, 2014), influenza activity continued to decrease in the U.S. Of 6,748 specimens tested and reported during week 9 by U.S. WHO and NREVSS collaborating laboratories, 587 (8.7%) were positive for influenza. The proportion of deaths attributed to pneumonia and influenza was above the epidemic threshold. 4 influenza-associated pediatric deaths were reported. A season-cumulative rate of 28.5 lab-confirmed influenza-associated hospitalizations per 100,000 population was reported. The proportion of outpatient visits for influenza-like illness (ILI) was 2.0%, which is at the national baseline. 5 of 10 regions reported ILI at or above region-specific baseline levels. 1 state experienced high ILI activity; 1 state experienced moderate ILI activity; 6 states experienced low ILI activity; 42 states and New York City experienced minimal ILI activity, and the District of Columbia had insufficient data. The geographic spread of influenza in 8 states was reported as widespread; 12 states reported regional influenza activity; the District of Columbia, Guam, and 26 states reported local activity; Puerto Rico and 4 states reported sporadic activity, and the U.S. Virgin Islands reported no activity.



**Influenza-Like Illness (ILI) Activity Level Indicator Determined by Data Reported to ILINet
2013-14 Influenza Season Week 9 ending Mar 01, 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.

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

International (WHO [edited], March 10): In North America, influenza activity continued to decrease overall, but remained elevated in some regions. Influenza A(H1N1)pdm09 continued as the predominant circulating virus, and influenza B detections increased slightly throughout the region. In Europe, activity was variable between countries. Overall trends showed slight increases in activity in the northern and eastern regions, and decreases in the southwestern region. Influenza A(H1N1)pdm09 and A(H3N2) continued to circulate with variable predominance among countries. In Eastern Asia, A(H1N1)pdm09 remained predominant and trends were inconsistent. Influenza activity in China began to decrease while activity in Mongolia continued to increase. In Tropical Asia, activity was largely decreased, however Thailand reported increasing influenza A(H1N1)pdm09 activity. In Northern Africa and Western Asia, activity varied, with Egypt continuing to report high activity of influenza A(H1N1)pdm09. Based on FluNet reporting (as of 4 March 2014), during 9 February to 22 February 2014, National Influenza Centres and other national influenza laboratories from 80 countries, areas or territories reported data. The WHO GISRS laboratories tested more than 80809 specimens. 16409 were positive for influenza viruses, of which 13869 (84.5%) were typed as influenza A and 2540 (15.5%) as B. Of the sub-typed A viruses, 6283 (70.6%) were influenza A(H1N1)pdm09 and 2612 (29.4%) were influenza A(H3N2). Of the characterized B viruses, 124 (84.9%) belonged to the B-Yamagata lineage and 22 (15.1%) 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 LOCAL INFLUENZA ACTIVITY to CDC for the week ending March 8, 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, Human (WHO [edited], March 7): The Ministry of Health (MoH) of the Kingdom of Cambodia wishes to advise members of the public that one (1) new human case of avian influenza has

been confirmed for the H5N1 virus. This is the 6th such case this year and the 53rd person reported to be infected with the H5N1 virus in Cambodia. The case is from Phnom Penh City. Of these 53 confirmed cases, 41 have been children under 14, and 29 of the 53 have been female. In addition, since the first case was confirmed in Cambodia in 2005, only 18 of the 53 cases have survived.

The full report is available online at <http://www.wpro.who.int/mediacentre/releases/2014/20140307/en/>.

International, Human (WHO [edited], March 7): On 4 March 2014, the Centre for Health Protection (CHP) of the Department of Health, Hong Kong SAR, 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_03_07/en/.

International, Human (WHO [edited], March 10): On 5 and 6 March 2014, the National Health and Family Planning Commission (NHFP) of China notified WHO of four 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_03_10/en/.

International, Human (WHO [edited], March 11): On 8 March 2014, the National Health and Family Planning Commission (NHFP) of China notified WHO of three 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_03_11b/en/.

International, Human (WHO [edited], March 11): On 7 March 2014, the National Health and Family Planning Commission (NHFP) 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_03_11c/en/.

International, Human (WHO [edited], February 25): Influenza at the human-animal interface: Summary and assessment as of 25 February 2014

Human infection with avian influenza A(H5N1) viruses

From 2003 through 25 February 2014, 658 lab-confirmed human cases of avian influenza A(H5N1) virus infection have been officially reported to WHO from 15 countries. Of these cases, 388 have died.

Since the last WHO Influenza at the Human-Animal Interface update on 24 January 2013, eight new laboratory-confirmed human cases of influenza A(H5N1) virus infection were reported to WHO (one from Viet Nam, five from Cambodia and two from China).

Cambodia reported five confirmed and one probable case of human infection with influenza A(H5N1) virus. All cases were children: a 5 year old boy from Kampong Thom, and three cases from the same village in Kratie province: an 8 year old boy and his 2 year old sister (probable case) and a 4 year old boy. The siblings died from severe respiratory infection, but samples were collected only from the 8 year old boy. The 4 year old boy was detected during the contact tracing around this family cluster. Exposure of the last three children to a common poultry source is likely as a high number of poultry were reported to have died in the village in mid-January, and all had direct exposure to dead and sick poultry. The last two reported cases were a 10 year old girl and an 11 year old girl from two different districts in Kampong Cham province. Both presented with mild disease and fully recovered. Poultry die-off was reported in their neighbourhood.

China reported 2 cases: one in a 75 year old man from Guangxi province who developed severe pneumonia and one in a 5 year old girl from Hunan province who fully recovered.

Viet Nam notified WHO of one fatal case of human infection with influenza A(H5N1) virus with onset on 22 January 2014 from Dong Thap province.

Overall public health risk assessment for avian influenza A(H5N1) viruses: Whenever influenza viruses are circulating in poultry, sporadic infections or small clusters of human cases are possible, especially in people exposed to infected household poultry or contaminated environments. This influenza A(H5N1)

virus does not currently appear to transmit easily among people. As such, the risk of community-level spread of this virus remains low.

Human infections with avian influenza A(H7N9) viruses in China

WHO is closely monitoring this event and separate risk assessments have been posted. Please find the most updated information at http://www.who.int/influenza/human_animal_interface/influenza_h7n9/Risk_Assessment/en/index.html

Human infections with avian influenza A(H10N8) viruses in China

Since the last WHO Influenza at the Human-Animal Interface update on 24 January 2013, two human cases of infection with avian influenza A(H10N8) virus were reported to WHO from China, both from Jiangxi province. The first human case of H10N8 virus infection was a 55-year-old woman with onset of illness 8 January, hospitalized on 15 January with severe pneumonia. She visited a live bird market four days before onset of illness. The second human case was in a 75-year-old man with underlying disease who was admitted to hospital on 4 February and died on 8 February. He was exposed to live poultry prior to onset of illness.

China has reported three human infections with influenza A(H10N8) virus since December 2014, all from Jiangxi province.

Genetic information from one virus isolate is available, which showed all genes to be of avian origin and the internal genes to be derived from A(H9N2) viruses currently circulating widely in poultry in China. This virus is susceptible to the neuraminidase inhibitor class of antiviral drugs.

Overall public health risk assessment for avian influenza A(H10N8) virus: Based on current epidemiological information, these cases seem not to be linked to each other. Information on the prevalence and distribution of A(H10N8) viruses in poultry in the region is limited, thus the assessment of its impact on public health is difficult. Further human cases of human infection with avian influenza A(H10N8) would not be unexpected if the virus were circulating in populations of birds to which humans were exposed.

The full report is available online at www.who.int/influenza/human_animal_interface/Influenza_Summary_IRA_HA_interface_25February14.pdf.

International, MERS-CoV (WHO [edited], March 11): On 20 February 2014, the Ministry of Health of Saudi Arabia announced two additional laboratory-confirmed cases of Middle East respiratory syndrome coronavirus (MERS-CoV) infection.

Globally, from September 2012 to date, WHO has been informed of a total of 186 laboratory-confirmed cases of infection with MERS-CoV, including 81 deaths.

The full report is available online at http://www.who.int/csr/don/2014_03_11/en/.

International, MERS-CoV (WHO [edited], March 12): WHO has been informed of an additional three laboratory-confirmed cases of Middle East respiratory syndrome coronavirus (MERS-CoV) infection. One case was reported from the United Arab Emirates (UAE) on 11 March and two cases from Saudi Arabia on 5 March.

Globally, from September 2012 to date, WHO has been informed of a total of 189 laboratory-confirmed cases of infection with MERS-CoV, including 82 deaths.

The full report is available online at http://www.who.int/csr/don/2014_03_12/en/.

International, Poultry (OIE [edited], March 7): Low pathogenic avian influenza H7N9; China
Outbreak 1: Jinshabeilu Agriculture Products Market, Liuyang, HUNAN; Date of start of outbreak: 19/2/14
Species: Birds; Susceptible: 631; Cases: 1; Deaths: 0; Destroyed: 631
Affected population: 50 samples were collected from the market (including 15 chicken samples, 16 pigeon samples and 19 environment samples). The positive samples were pigeon samples.

Outbreak 2: Chengbei Agriculture Products Market, Shuangfeng, Loudi, HUNAN: Start of outbreak: 19/2/14
Species: Birds; Susceptible: 22; Cases: 2; Deaths: 0; Destroyed: 22

Affected population: 22 chicken samples were collected from the market.

Outbreak 3: Baijiaodazhong Agriculture Products Market, Doumen, Zhuhai, GUANGDONG
Date of start of outbreak: 23/02/2014; Species: Birds; Susceptible: 82; Cases: 3; Deaths: 0; Destroyed: 82
Affected population: 60 samples were collected from the market (including 20 chicken samples, 20 duck samples and 20 goose samples). The positive samples were chicken samples.

International, Poultry (OIE [edited], March 7): Highly pathogenic avian influenza H5N1; Vietnam
Outbreak 1: Can Tho, CAN THO; Date of start of the outbreak: 06/03/2014; Epidemiological unit: Village
Species: Birds; Susceptible: 7512; Cases: 5812; Deaths: 500; Destroyed: 7012

Outbreak 2: Hoa Lu, Hoa Lu, Plei Ku, GIA LAI; Date of start of the outbreak: 06/03/2014
Epidemiological unit: Village; Species: Birds; Susceptible: 731; Cases: 260; Deaths: 160; Destroyed: 571

International, Poultry (OIE [edited], March 7): Highly pathogenic avian influenza H5N1; China
Outbreak 1: Junction of three villages, Tonghai, Yuxi, YUNNAN; Date of start of the outbreak: 02/03/2014
Species: Birds; Susceptible: 533000; Cases: 29600; Deaths: 29600; Destroyed: 503400

International, Poultry (OIE [edited], March 10): Highly pathogenic avian influenza H5N1; Vietnam
Outbreak 1: Vinh Cuu, Vinh Cuu, DONG NAI; Date of start of the outbreak: 09/03/2014
Epidemiological unit: Village; Susceptible: 19200; Cases: 10000; Deaths: 5000; Destroyed: 14200

International, Poultry (OIE [edited], March 11): Highly pathogenic avian influenza H5N1; Vietnam
Outbreak 1: Dien Ban, Dien Ban, QUANG NAM; Date of start of the outbreak: 10/03/2014
Epidemiological unit: Village; Susceptible: 4056; Cases: 2970; Deaths: 2000; Destroyed: 2056

Outbreak 2: Dao Duc, Dao Duc, Vi Xuyen, HA GIANG; Date of start of the outbreak: 10/03/2014
Epidemiological unit: Village; Susceptible: 114; Cases: 114; Deaths: 70; Destroyed: 44

International, Poultry (OIE [edited], March 12): Highly pathogenic avian influenza H5N1; Vietnam
Outbreak 1: Cam Son, Cam Son, Mo Cay, BEN TRE; Date of start of the outbreak: 09/03/2014
Epidemiological unit: Village; Species: Birds; Susceptible: 1419; Cases: 321; Deaths: 321; Destroyed: 1098

International, Poultry (OIE [edited], March 12): Highly pathogenic avian influenza H5N1; Libya
Outbreak 1: Kroum Alkhail, TUBRUQ; Date of start of the outbreak: 04/03/2014
Epidemiological unit: Farm; Affected population: 45 local backyard chickens and 5 ducks
Species: Birds; Susceptible: 50; Cases: 19; Deaths: 15; Destroyed: 35

International, Poultry (OIE [edited], March 12): Low pathogenic avian influenza H5N1; Germany
Outbreak 1 (14-614-00002): Laar, Vorwald (bei Emlichheim), Grafschaft Bentheim, NIEDERSACHSEN
Date of start of the outbreak: 09/03/2014; Epidemiological unit: Farm
Species: Birds; Susceptible: 38323; Cases: 48; Deaths: 48; Destroyed: 38275
Affected population: Clinical signs: decrease of egg production. Free-range laying hens.

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_20130124CumulativeNumberH5N1cases.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