MI Flu Focus

Influenza Surveillance Updates
Bureaus of Epidemiology and Laboratories

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Surveillance and Infectious Disease Epidemiology

May 22, 2014
Vol. 11; No. 29

Current Influenza Activity Levels:

- **Michigan:** Sporadic influenza activity
- **National:** During May 4-10, influenza activity continued to decrease in the United States

Updates of Interest:

- **International:** 4 new cases of human infection with avian influenza A(H7N9)

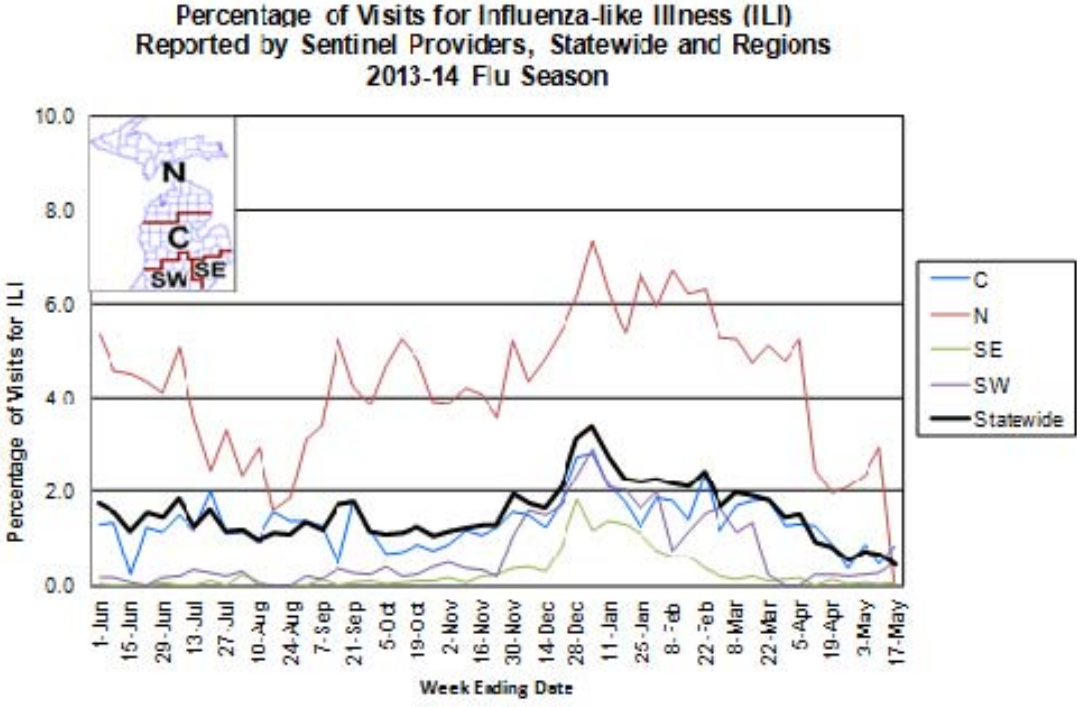
Table of Contents

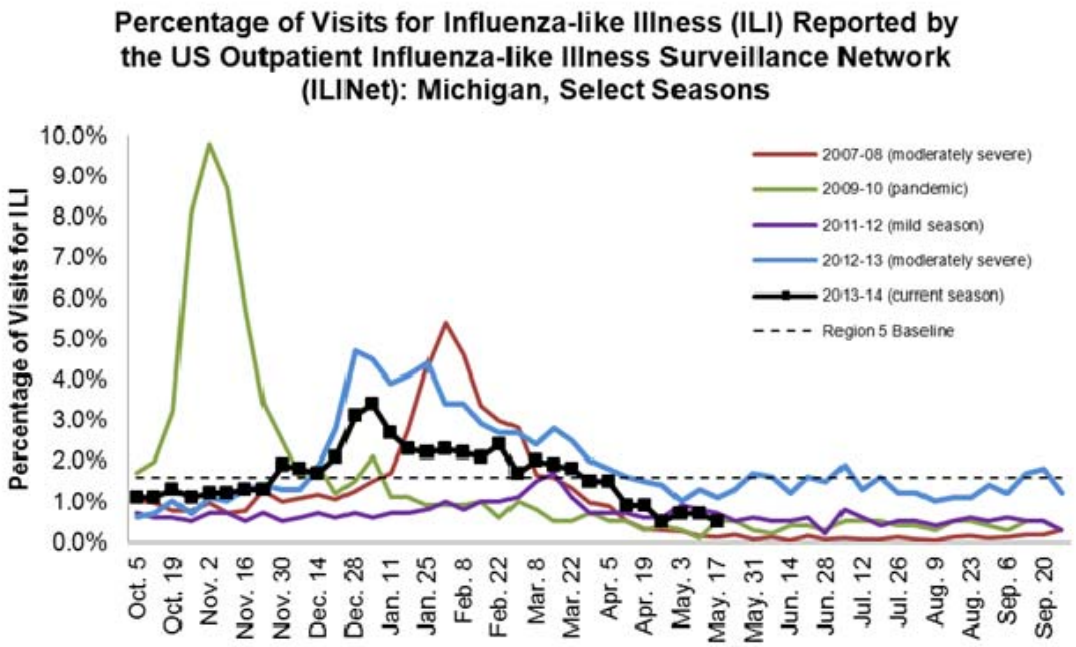
Influenza Surveillance Reports

Michigan Disease Surveillance System (as of May 22): MDSS influenza data for the week ending May 17, 2014 indicated that compared to levels from the previous week, aggregate reports remained steady and individual reports slightly decreased. Aggregate reports are moderately lower than levels seen during the same time period last year, while individual reports are similar.

Emergency Department Surveillance (as of May 22): Emergency department visits due to both constitutional and respiratory complaints remained steady during the week ending May 17, 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 2 constitutional alerts in the SW(1) and C(1) Influenza Surveillance Regions and 5 respiratory alerts in the SE(1), SW(3) and N(1) Regions.

Sentinel Provider Surveillance (as of May 22): During the week ending May 17, 2014, the proportion of visits due to influenza-like illness (ILI) decreased to 0.5% overall; this is below the regional baseline (1.6%). A total of 32 patient visits due to ILI were reported out of 7,046 office visits. Data were provided by 23 sentinel sites from the following regions: Central (8), North (2), Southeast (10), and Southwest (3). ILI decreased in one region: N (0.0%) and increased in three regions: C (0.9%), SE (0.1%) and SW (0.5%). Please note: These rates may change as additional reports are received.





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 22): 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 22nd, 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 17): During May 11-17, 1 A/H3 (1SW) and 3 influenza B (2SW,1N) results were reported by MDCH Bureau of Laboratories. For the 2013-14 season (starting Sept. 29, 2013), MDCH has identified 395 positive influenza results:

- Influenza 2009 A/H1N1pdm: 340 (77SE,132SW,94C,38N)
- Influenza A/H3: 25 (12SE,10SW,3C)
- Influenza A unsubtypable: 1 (1SE)
- Influenza A and B (LAIV recovery): 1 (1SE)
- Influenza B: 33 (8SE,15SW,5C,5N)
- 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 17, 2014. 5 labs (SE,SW,C) reported sporadic influenza A activity. 2 labs (SE,SW) reported sporadic influenza B activity. 3 labs (SW,C) reported sporadic RSV activity. 2 labs (SW,C) reported sporadic parainfluenza activity. 2 labs (SW) reported sporadic hMPV activity. 1 lab (SW) had sporadic adenovirus activity. Testing volumes are at low levels.

Michigan Influenza Antigenic Characterization (as of May 22): 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. 13 specimens (8SE,4SW,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 22): 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 22): 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.

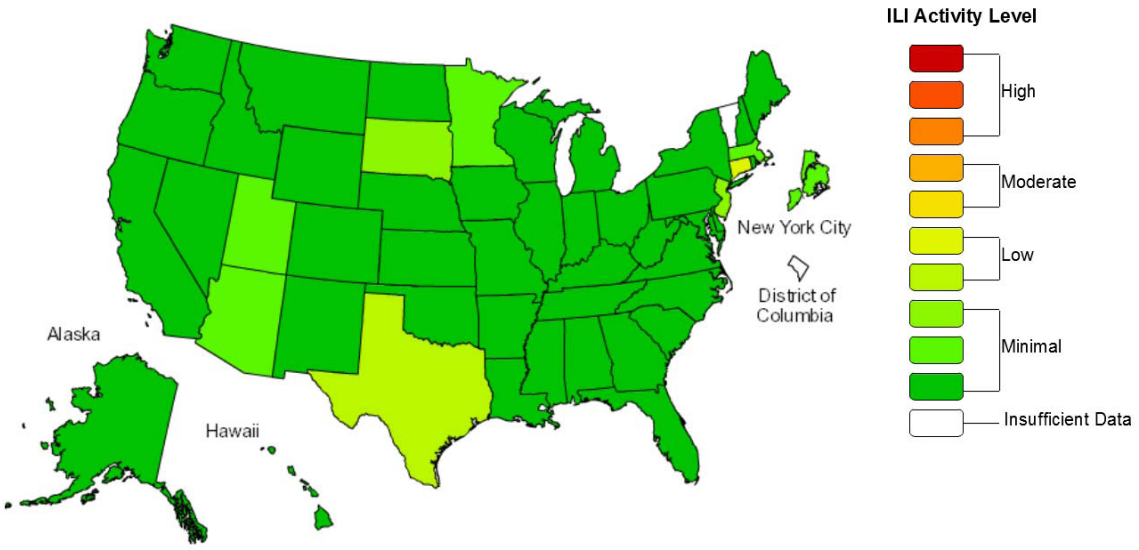
Influenza Congregate Settings Outbreaks (as of May 22): No new outbreaks were reported during the previous week. 19 respiratory outbreaks (2SE,9SW,6C,2N) have been reported to MDCH during the 2013-14 season:

- 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)

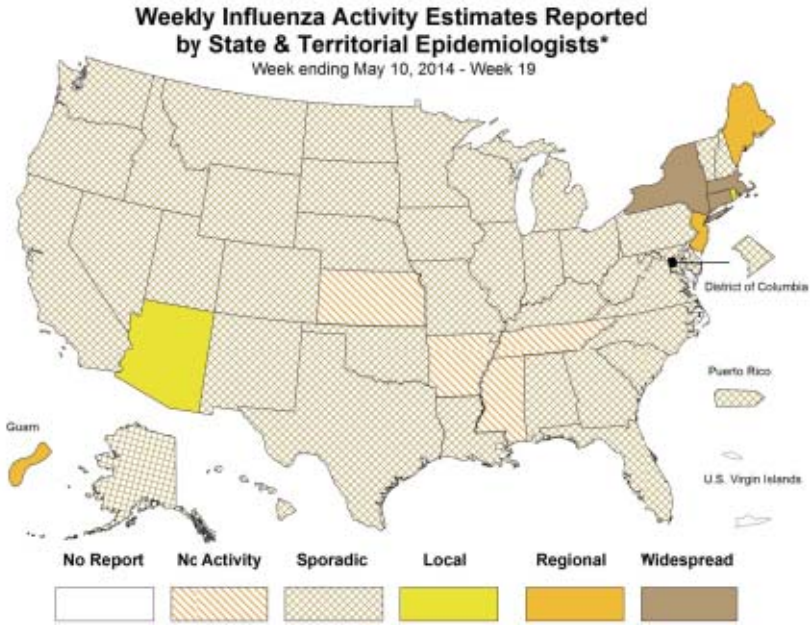
National (CDC [edited], May 16): During week 19 (May 4-10, 2014), influenza activity continued to decrease in the United States. Of 3,381 specimens tested and reported during week 19 by U.S. WHO and NREVSS collaborating laboratories, 342 (10.1%) were positive for influenza. The proportion of deaths attributed to pneumonia and influenza was below the epidemic threshold. 3 influenza-associated pediatric deaths were reported. A season-cumulative rate of 35.4 lab-confirmed influenza-associated hospitalizations per 100,000 population was reported. The proportion of outpatient visits for influenza-like illness (ILI) was 1.3%, which is below the national baseline of 2.0%. Two of 10 regions reported ILI at or above region-specific baseline levels. Two states experienced low ILI activity; 47 states and New York City experienced minimal ILI activity, and the District of Columbia and one state had insufficient data. The geographic spread of influenza in 3 states was reported as widespread; Guam and 2 states reported regional influenza activity; 2 states reported local activity; the District of Columbia, Puerto Rico, and 39 states reported sporadic activity; 4 states reported no activity, and the U.S. Virgin Islands did not report.

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 19 ending May 10, 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 19): Globally the northern hemisphere influenza season was at inter-seasonal levels in most countries. Influenza B virus continued to be the majority of late season detections in most regions. In North America, levels were at inter-seasonal levels with some influenza B circulation still detected. In Europe, activity was at inter-seasonal levels in most countries. In eastern Asia, activity approached inter-seasonal levels in most countries with influenza B predominating. In tropical Asia, activity continued to decline in most countries. In northern Africa and western Asia, activity remained low in most countries, with influenza B the predominant virus detected. In the southern hemisphere, activity is still low, although in some countries influenza-like illness activity is slowly increasing. Influenza detections were still low. Based on FluNet reporting (as of 15 May 2014), during weeks 17-18 (20 April - 3 May 2014), National Influenza Centres and other labs from 81 countries, areas or territories reported. The WHO labs tested more than 40300 specimens. 3739 were positive, of which 1696 (45.4%) were typed as A and 2043 (54.6%) as B. Of the sub-typed A viruses, 278 (31.2%) were A(H1N1)pdm09 and 613 (68.8%) were A(H3N2). Of the B viruses, 49 (89.1%) belong to the B-Yamagata lineage and 6 (10.9%) 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 May 17, 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 16): On 15 May 2014, the National IHR Focal Point for the Netherlands notified WHO about a second laboratory confirmed case of MERS-CoV infection in the Netherlands. The case was discovered during the national contact investigation, performed in relation to the first MERS-CoV case in the Netherlands reported on 14 May 2014.

This second patient is a 73 year-old female citizen of the Netherlands and a close family member of the first case. Both patients were on the same trip through the Kingdom of Saudi Arabia and shared a hotel room throughout the entire journey. This second patient has co-morbidities and developed first symptoms, including some breathing difficulties, on 5 May 2014 in Mecca, Saudi Arabia. Upon return to the Netherlands on 10 May, the patient presented with mild respiratory symptoms and fever, but these were not severe enough for her to seek medical help.

During contact investigation, her clinical condition was re-evaluated by a general practitioner and sampling for MERS-CoV was initiated. Samples taken from the patient are currently being tested, but initial findings

confirm she is positive for MERS-Cov. Currently, the patient is in a stable condition with fever and mild respiratory symptoms and is hospitalized in isolation.

Identification of close contacts (including flight contacts) has been initiated, although the majority of her contacts overlap with those from the first patient.

Globally, 614 laboratory-confirmed cases of infection with MERS-CoV have officially been reported to WHO, including 181 deaths. The global total includes all of the case reported in this update, plus 41 laboratory confirmed cases officially reported to WHO from Saudi Arabia between 10 and 15 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_16_mers/en/.

International, MERS-CoV (WHO [edited], May 22): On 2 May 2014, the National IHR Focal Point for the United States of America notified WHO about the first laboratory confirmed case of MERS-CoV infection in the United States.

As part of the investigation of contacts of the first confirmed case, testing for MERS-CoV was undertaken on contacts. A contact of the first case initially tested negative for MERS-CoV by PCR based on respiratory tract samples taken 10 days after contact with the first case. However, on 16 May, this contact tested positive for antibodies for MERS-CoV in a blood sample taken 14 days after contact. Currently, this individual is asymptomatic. He is a male in his 70s with comorbidities and has no history of travel to countries outside the United States.

The antibody test result suggests this individual may have been infected with MERS-CoV; however he does not meet WHO's current definition of a laboratory confirmed case of MERS-CoV, which requires positive PCR tests.

Globally, 632 laboratory-confirmed cases of infection with MERS-CoV have officially been reported to WHO, including 193 deaths. The global total includes all of the case reported in this update, plus 17 laboratory confirmed cases officially reported to WHO from Saudi Arabia between 16 and 18 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_22_mers/en/.

International, Human (WHO [edited], May 22): On 19 May 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. Details of the cases are as follows:

- A 66 year-old male from Wuxi City, Jiangsu Province. He had onset of symptoms on 20 April, was admitted to a hospital on 25 April, and is currently in a critical condition. He had a history of exposure to live poultry.
- A 86 year-old male from Meizhou City, Guandong Province. He had onset of symptoms on 4 May, was admitted to a hospital on 9 May, and is currently in a critical condition. He had a history of exposure to live poultry.
- A 71 year-old male, farmer from Meizhou City, Guandong Province. He had onset of symptoms on 10 May, was admitted to a hospital on 12 May, and is currently in a mild condition. He had a history of exposure to live poultry.
- A 37 year-old male from Zhongshan City, Guandong Province. He had onset of symptoms on 12 May, was admitted to a hospital on 13 May, and is currently in a critical condition. He had a history of exposure to live poultry.

The full report is available online at http://www.who.int/csr/don/2014_05_22_h7n9/en/.

International, Human (WHO [edited], May 5): Influenza at the human-animal interface: Summary and assessment as of 5 May 2014

Human infection with avian influenza A(H5N1) viruses
From 2003 through 5 May 2014, 665 laboratory-confirmed human cases of avian influenza A(H5N1) virus infection have been officially reported to WHO from 15 countries. Of these cases, 392 have died.

Since the last WHO Influenza at the Human-Animal Interface update on 24 March 2014, one new laboratory-confirmed human cases of influenza A(H5N1) virus infection was reported to WHO from Indonesia in a 2-y-old boy from Central Java. In the weeks before disease onset of the child some backyard chickens died around the house. Although this is the first human case of H5N1 reported in 2014 from Indonesia, it is not unexpected as influenza A(H5N1) virus is known to be still circulating in poultry.

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.

The full report is available online at
www.who.int/influenza/human_animal_interface/Influenza_Summary_IRA_HA_interface_5May14.pdf?ua=1.

International, Poultry (OIE [edited], May 19): Low pathogenic avian influenza H5N2; Chinese Taipei
Outbreak 1: Erlun Township, YUNLIN COUNTY; Date of start of the outbreak: 21/04/2014
Epidemiological unit: Farm; Affected population: Native chicken breeders
Species: Birds; Susceptible: 4184; Cases: 20; Deaths: 0; Destroyed: 0

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/downld/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