



# 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](mailto:peterss1@michigan.gov)  
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## Updates of Interest:

- **International:** Saudi Arabia, Iran and UAE report additional MERS-CoV cases
- **International:** Globally influenza activity remained low, with gradual increase of influenza activity in the southern hemisphere

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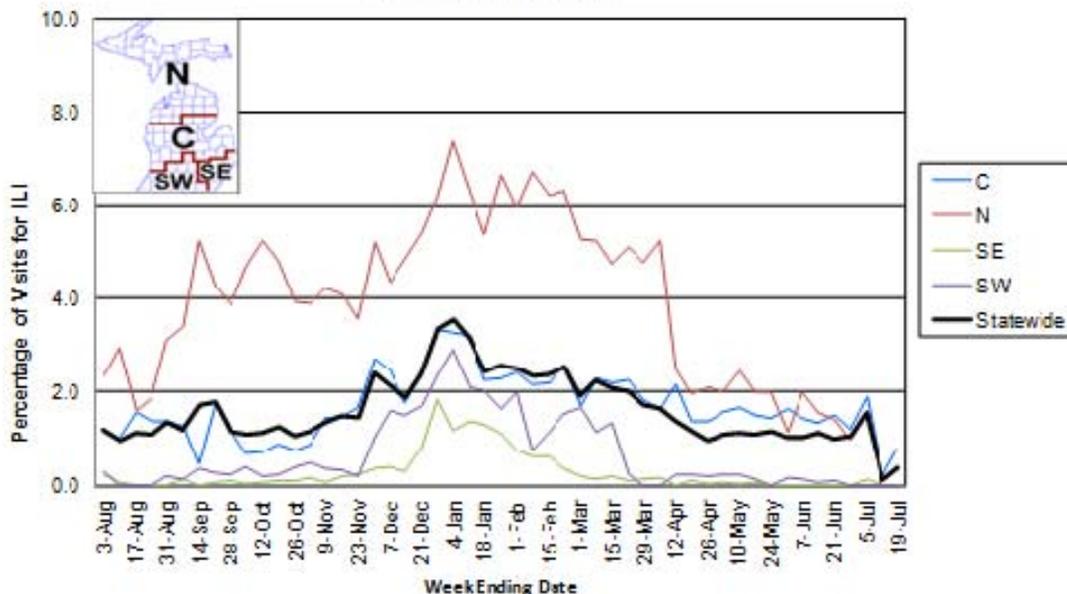
## Influenza Surveillance Reports

**Michigan Disease Surveillance System (as of July 24):** MDSS influenza data for the week ending July 19, 2014 indicated that compared to levels from the previous week, individual and aggregate reports remained steady at very sporadic levels. Both aggregate and individual reports are similar to levels seen during the same time period last year.

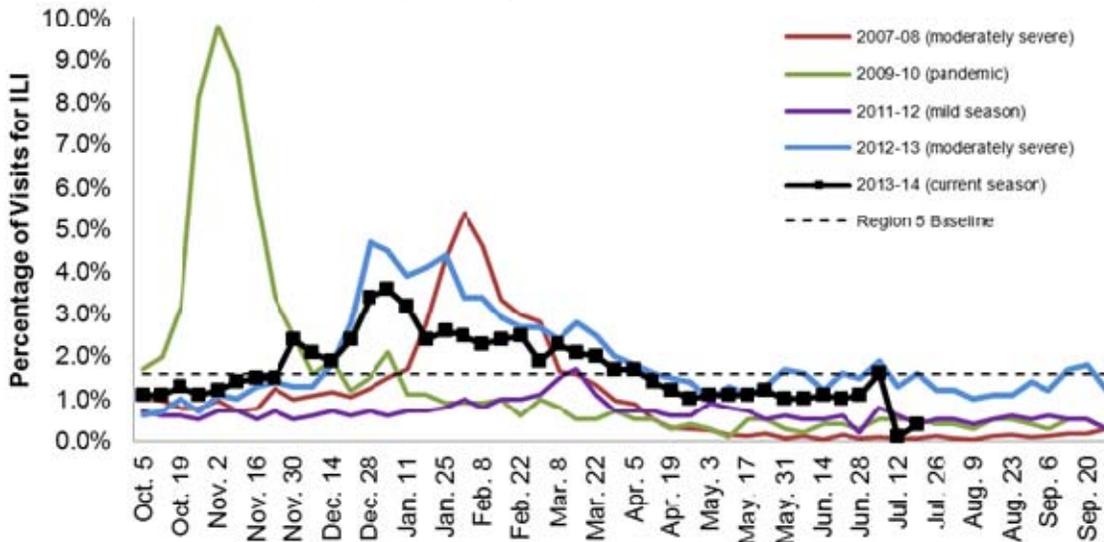
**Emergency Department Surveillance (as of July 24):** Emergency department visits due to constitutional complaints remained steady during the week ending July 19, 2014, while respiratory complaints slightly decreased. Emergency department visits from constitutional complaints are similar to levels during the same time period last year, while respiratory complaints are slightly higher. In the past week, there were 7 constitutional alerts in the SE(1) and C(6) Influenza Surveillance Regions, 1 statewide constitutional alert and 5 respiratory alerts in the C(4) and N(1) Regions.

**Sentinel Provider Surveillance (as of July 24):** During the week ending July 19, 2014, the proportion of visits due to influenza-like illness (ILI) increased to 0.4% overall; this is below the regional baseline (1.6%). A total of 24 patient visits due to ILI were reported out of 6,521 office visits. Data were provided by 20 sentinel sites from the following regions: Central (7), North (2), Southeast (11), and Southwest (0). ILI activity increased in one region: C (0.8%), remained the same in two regions: N (0.0%) and SE (0.0%) and activity was not reported in the SW region. 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 July 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 and ending April 30, 2014, for Clinton, Eaton, Genesee, and Ingham counties. There were 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 July 19):** During July 6-19, 1 positive A/H3 (1SW) influenza result was reported by MDCH Bureau of Laboratories. For the 2013-14 season (starting Sept. 29, 2013), MDCH has identified 410 positive influenza results:

- Influenza 2009 A/H1N1pdm: 340 (77SE,132SW,94C,38N)
- Influenza A/H3: 32 (14SE,12SW,6C)
- Influenza A unsubtypeable: 1 (1SE)
- Influenza A and B (LAIV recovery): 1 (1SE)
- Influenza B: 41 (11SE,15SW,9C,6N)
- RSV: 2 (2SW)
- Adenovirus: 2 (1SE,1SW)
- Parainfluenza: 3 (1SE,2SW)
- Human metapneumovirus: 4 (4SW)

6 sentinel labs (SW,C) reported for the week ending July 19, 2014. No labs reported influenza A or B, RSV, parainfluenza, adenovirus or hMPV activity. Testing volumes are at very low levels.

**Michigan Influenza Antigenic Characterization (as of July 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. 29 specimens (7SE,11SW,6C,5N) 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 July 24):** 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 July 24):** 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\\_pediatic\\_influenza\\_guidance\\_v2\\_214270\\_7.pdf](http://www.michigan.gov/documents/mdch/ME_pediatic_influenza_guidance_v2_214270_7.pdf).

**Influenza Congregate Settings Outbreaks (as of July 24):** No new respiratory outbreaks were reported to MDCH during the previous weeks. 22 respiratory outbreaks (2SE,10SW,7C,3N) 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: 3 (1SW,1C,1N)
- Influenza positive: 1 (1SW)
- Human metapneumovirus: 2 (1SE,1N)
- RSV: 1 (1SW)
- Negative/no testing: 7 (1SW,5C,1N)

**National (CDC):** Past weekly reports and updated data during the summer months are available online at: <http://www.cdc.gov/flu/weekly/>.

**International (WHO [edited], July 14):** Globally influenza activity remained low, with gradual increase of influenza activity in the southern hemisphere, however in Chile influenza activity was relatively high. In North America and Europe, overall influenza activity remained at inter-seasonal levels. In eastern Asia, influenza activity reached inter-seasonal levels in most countries with influenza A(H3N2) and influenza B virus predominating, although influenza activity was still slightly increasing in the south region of China, mainly due to influenza A(H3N2) viruses. In southern and south-eastern Asia, influenza activity continued to decline, except for Singapore that showed a sustained increase in influenza detection rates, even while the rate for influenza-like illness activity and acute respiratory infections remained low. In northern Africa and western Asia, influenza activity remained low. In the southern hemisphere, activity increased but was generally at a low level, except for Chile which showed influenza activity similar to last year's peak, with mainly influenza A(H3N2) detections. In South Africa the influenza detection rate increased mainly due to A(H3N2). Based on FluNet reporting (as of 14 July 2014), during weeks 25 to 26 (15 June to 28 June 2014), National Influenza Centres and other national influenza labs from 70 countries, areas or territories reported data. The WHO GISRS laboratories tested more than 29795 specimens. 2748 were positive for influenza viruses, of which 2230 (81.2%) were typed as influenza A and 517 (18.8%) as B. Of the sub-typed A viruses, 257 (12.9%) were A(H1N1)pdm09 and 1740 (87.1%) were A(H3N2). Of the characterized B viruses, 123 (93.9%) belong to the B-Yamagata lineage and 8 (6.1%) 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](http://www.who.int/influenza/surveillance_monitoring/updates/latest_update_GIP_surveillance/en/index.html).

Weekly reporting of influenza activity to the CDC has ended for the 2013-2014 influenza season.

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](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], July 14):** On 10 July 2014, the National IHR Focal Point for the United Arab Emirates (UAE) reported 2 additional laboratory-confirmed cases of infection with Middle East respiratory syndrome coronavirus (MERS-CoV).

Details of the cases reported are as follows:

A 67-year-old man from Abu Dhabi, UAE who became ill on 17 June and was admitted to a hospital on the same day. On 2 July 2014, the patient was critically ill and was admitted to the intensive care unit in a

hospital in Abu Dhabi. He was laboratory-confirmed with MERS-CoV infection on 6 July. The patient is reported to have underlying medical conditions. The patient owns a camel farm in the Eastern Region of Saudi Arabia. He visited his farm 3 months prior to becoming ill and had direct contact with camels. Two weeks prior to becoming ill, he visited a camel farm in Abu Dhabi, where he did not have direct contact with camels. He does not have a history of contact with a previously laboratory-confirmed case with MERS-CoV infection and does not have a history of recent travel. Investigation of the camel farm in Abu Dhabi, and follow up of contacts of the patient are currently on-going.

A 50-year-old man residing in Abu Dhabi, UAE, who was identified as part of screening of contacts in a farm where a camel was laboratory-confirmed with MERS-CoV infection. The camel was laboratory-confirmed with MERS-CoV infection, according to the report of the Ministry of Environment and Water on 26 June. The patient was screened for MERS-CoV infection on 3 July. The patient did not have any symptom then. However, he developed a mild cough on 5 July and was laboratory-confirmed with MERS-CoV infection on 6 July. He does not have a history of contact with a previously laboratory-confirmed human case of infection with MERS-CoV. Tracing of contacts of the patient and other contacts of the camel farm are ongoing.

Globally, 836 laboratory-confirmed cases of infection with MERS-CoV including at least 288 related deaths have officially been reported to WHO.

The full report is available online at [http://www.who.int/csr/don/2014\\_07\\_14\\_mers2/en/](http://www.who.int/csr/don/2014_07_14_mers2/en/).

**International, MERS-CoV (WHO [edited], July 14):** On 3, 5, 6, 8 and 10 July 2014, the National IHR Focal Point for Saudi Arabia reported an additional 7 laboratory-confirmed cases of infection with Middle East respiratory syndrome coronavirus (MERS-CoV), and the death of a previously reported case.

Details of the case reported on 3 July are as follows:

A 55-year-old woman from Addawaser City, Riyadh Region who became ill on 25 June, was admitted to a hospital on 2 July and is currently in a stable condition. She was laboratory-confirmed with MERS-CoV infection on 3 July. She is reported to have an underlying medical condition. The patient's husband owns a camel farm which she visits frequently. She is reported not to have consumed raw camel products in the 14 days prior to becoming ill. She is reported not to have contact with a previously laboratory-confirmed case with MERS-CoV infection. On 15 June, she travelled to Riyadh City where she stayed for a day.

Investigations into the contacts of the patient are ongoing.

Details of the two cases reported on 5 and 6 July are as follow:

A 52-year-old man residing in Jeddah City, Makkah Region. He became ill on 24 June and visited a private clinic but his condition did not improve. He was admitted to a hospital on 2 July with respiratory problems and renal failure and is currently in a critical condition. The patient was laboratory-confirmed with MERS-CoV infection on 4 July. He does not have a history of travel.

A 72-year-old man from Arar City, Northern Bordes Province. He became ill and was admitted to a hospital on 3 July. He was laboratory-confirmed with MERS-CoV infection on 5 July. The patient died on 6 July. He had multiple underlying medical conditions. He had no history of recent travel and did not have contact with a previously laboratory-confirmed case with MERS-CoV infection. The patient has no history of consumption of raw camel products.

Details of the three cases reported on 8 July are as follow:

A 70-year-old man from Taif City, Mecca Region who became ill on 28 June, was admitted to a hospital on 4 July and is currently in intensive care. The patient was laboratory-confirmed with MERS-CoV infection on 6 July. He is reported to have underlying medical conditions. The patient is reported to have no history of travel and no contact with a previously laboratory-confirmed case with MERS-CoV infection. The patient is reported to have consumed raw camel milk a week prior to his illness and has had close contact with goats he raises.

A 74-year-old man from Riyadh city, Riyadh Region who became ill on 4 July, was admitted to a hospital on 5 July and is currently in a stable condition. He was laboratory-confirmed with MERS-CoV infection on 6 July. The patient is reported not to have any underlying medical condition. He did not have a history of travel 14 days prior to becoming ill and has no known contact with a previously laboratory-confirmed case with MERS-CoV infection. He has no history of contact with animals or consumption of raw camel products.

A 70-year-old man from Riyadh City, Riyadh Region who became ill on 1 July, admitted to a hospital on 5 July and is currently in a stable condition. He was laboratory-confirmed with MERS-CoV on 6 July. The patient is reported to have an underlying medical condition. He has no history of travel 14 days prior to becoming ill and is not known to have contact with a previously laboratory-confirmed case of infection with MERS-CoV. He has no history of consumption of raw camel products within the 14 days prior to becoming ill and did not have contact with animals.

Details of the three cases reported on 10 July are as follow:

A 49-year-old man from Hassa City, Eastern Region, who became ill on 28 June, was admitted to a hospital on 8 July and is currently in a stable condition. He was laboratory-confirmed with MERS-CoV infection on 9 July. The patient is reported to have underlying medical conditions. He has no history of travel and did not have contact with a previously laboratory-confirmed case with MERS-CoV infection. The patient has a farm and had direct contact with birds, goats and camels. Samples have been taken from 15 contacts of the patient, the farm workers and camels for laboratory testing.

Investigations into the contacts of the patients are ongoing.

Globally, 834 laboratory-confirmed cases of infection with MERS-CoV including at least 288 related deaths have officially been reported to WHO.

The full report is available online at [http://www.who.int/csr/don/2014\\_07\\_14\\_mers/en/](http://www.who.int/csr/don/2014_07_14_mers/en/).

**International, MERS-CoV (WHO [edited], July 23):** On 12 July 2014, the National IHR Focal Point of the Islamic Republic of Iran reported to WHO an additional laboratory-confirmed case of infection with Middle East respiratory syndrome coronavirus (MERS-CoV).

The patient is a 67-year-old woman from Kerman Province. The patient had Chronic Obstructive Pulmonary Disease (COPD) and was admitted to a hospital on 6 June 2014 due to a COPD exacerbation. The patient was discharged on 14 June 2014 and continued treatment at home. She was in a stable condition until she developed severe acute respiratory symptoms and was readmitted to a hospital on 25 June 2014. The patient was laboratory-confirmed with MERS-CoV on 5 July 2014 and died on the same day. The patient had no history of travel and no known history of contact with animals or consumption of raw camel milk products in the 14 days prior to becoming ill. The patient did not have known contact with a previously reported MERS-CoV case. However, during her first hospitalisation, the patient had close contact with another patient with severe acute respiratory infection.

Investigation of contacts in the health care facility and family of the case is ongoing.

Additionally, Saudi Arabia reported 3 deaths among previously reported MERS-CoV cases.

Globally, 837 laboratory-confirmed cases of infection with MERS-CoV including at least 291 related deaths have officially been reported to WHO.

The full report is available online at [http://www.who.int/csr/don/2014\\_07\\_23\\_mers/en/](http://www.who.int/csr/don/2014_07_23_mers/en/).

**International, Human (Emerging Infectious Disease abstract, July 18):** Ren L, Yu X, Zhao B, Wu F, Jin Q, Zhang X, et al. Infection with possible avian influenza A(H7N9) virus precursor in a child, China, 2013. *Emerg Infect Dis.* 2014 Aug.

During the early stage of the avian influenza A(H7N9) epidemic in China in March 2013, a strain of the virus was identified in a 4-year-old boy with mild influenza symptoms. Phylogenetic analysis indicated that this strain, which has similarity to avian subtype H9N2 viruses, may represent a precursor of more-evolved H7N9 subtypes co-circulating among humans.

The full article is available online at [http://wwwnc.cdc.gov/eid/article/20/8/14-0325\\_article](http://wwwnc.cdc.gov/eid/article/20/8/14-0325_article).

**International, Human and Swine (Emerging Infectious Disease abstract, July 22):** Bowman AS, Nelson SW, Page SL, Nolting JM, Killian ML, Sreevatsan S, et al. Swine-to-human transmission of influenza A(H3N2) virus at agricultural fairs, Ohio, USA, 2012. *Emerg Infect Dis* [Internet]. 2014 Sep

Agricultural fairs provide an opportunity for bidirectional transmission of influenza A viruses. We sought to determine influenza A virus activity among swine at fairs in the United States. As part of an ongoing active

influenza A virus surveillance project, nasal swab samples were collected from exhibition swine at 40 selected Ohio agricultural fairs during 2012. Influenza A(H3N2) virus was isolated from swine at 10 of the fairs. According to a concurrent public health investigation, 7 of the 10 fairs were epidemiologically linked to confirmed human infections with influenza A(H3N2) variant virus. Comparison of genome sequences of the subtype H3N2 isolates recovered from humans and swine from each fair revealed nucleotide identities of >99.7%, confirming zoonotic transmission between swine and humans. All influenza A(H3N2) viruses isolated in this study, regardless of host species or fair, were >99.5% identical, indicating that 1 virus strain was widely circulating among exhibition swine in Ohio during 2012.

The full article is available online at [http://wwwnc.cdc.gov/eid/article/20/9/13-1082\\_article](http://wwwnc.cdc.gov/eid/article/20/9/13-1082_article).

**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](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](mailto: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](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