



MI Flu Focus

Influenza Surveillance Updates
Bureaus of Epidemiology and Laboratories

Michigan Department
of Community Health



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Surveillance and Infectious Disease Epidemiology

November 14, 2013
Vol. 10; No. 41

Current Influenza Activity Levels:

- **Michigan:** Sporadic influenza activity
- **National:** During October 27-November 2, influenza activity remained low in the U.S.

Updates of Interest:

- **International:** Cambodia reports a new human case of avian influenza H5N1
- **International:** New MERS-CoV cases are confirmed from Saudi Arabia and Qatar

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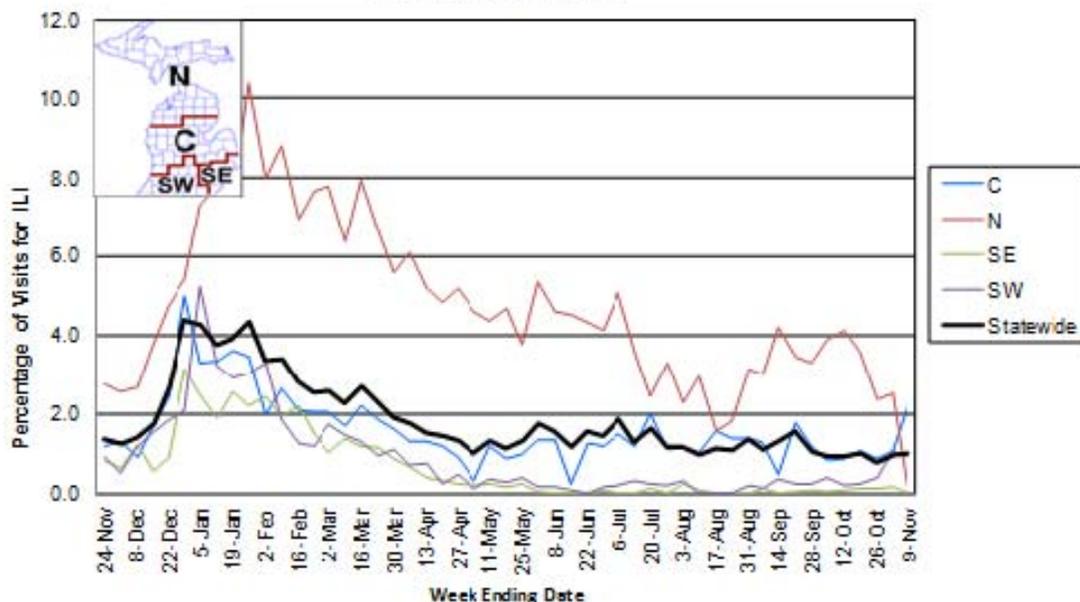
Influenza Surveillance Reports

Michigan Disease Surveillance System (as of November 14): MDSS influenza data for the week ending November 9, 2013 indicated that compared to levels from the previous week, individual reports remained steady at low levels, while aggregate reports slightly increased. Both individual and aggregate reports are similar to levels seen during the same time period last year.

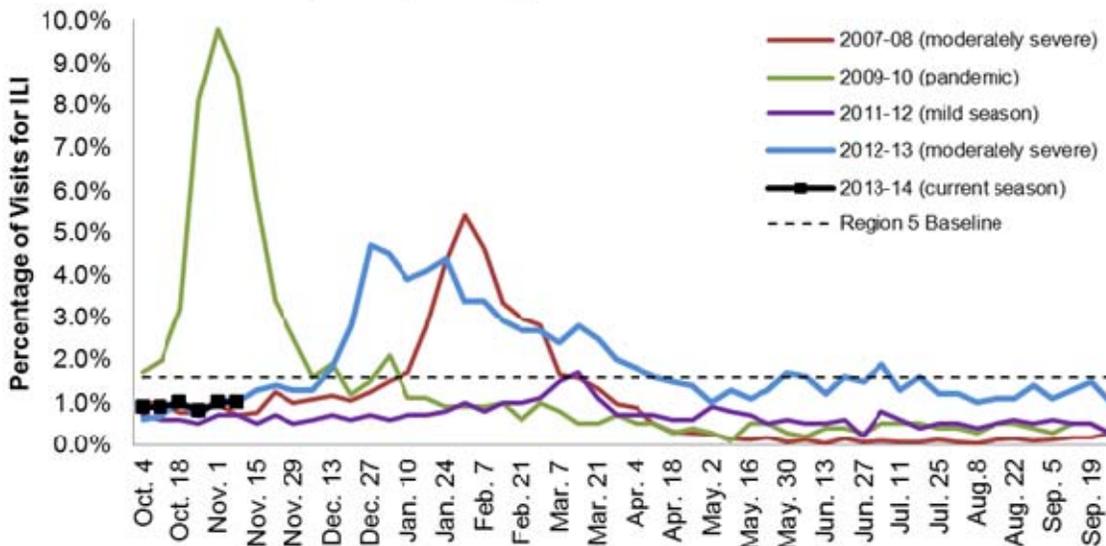
Emergency Department Surveillance (as of November 14): Emergency department visits due to both constitutional and respiratory complaints remained steady during the week ending November 9, 2013. Emergency department visits from both constitutional and respiratory complaints were similar to levels during 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 10 respiratory alerts in the SW(2), C(6) and N(2) Regions.

Sentinel Provider Surveillance (as of November 14): During the week ending November 9, 2013, the proportion of visits due to influenza-like illness (ILI) decreased to 1.0% overall; this is below the regional baseline (1.6%). A total of 88 patient visits due to ILI were reported out of 8,918 office visits. Data were provided by 28 sentinel sites from the following regions: Central (12), North, (1), Southeast (10), and Southwest (5). ILI activity decreased in three regions: N (0.0%), SE (0.0%), and SW (0.9%) and increased in one region: C (2.2%). 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 November 9): 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. No cases were identified during the past week. As of November 9th, there have been 2 influenza hospitalizations (2 pediatric) within the catchment area.

The MDCH Influenza Sentinel Hospital Network monitors influenza hospitalizations reported voluntarily by hospitals statewide. Eight hospitals (SE,SW,C) reported for the week ending November 9, 2013. Results are listed in the table below.

Age Group	Hospitalizations Reported During Current Week	Total Hospitalizations 2013-14 Season
0-4 years	0	1 (1C)
5-17 years	0	1 (1C)
18-49 years	0	0
50-64 years	0	0
≥65 years	0	1 (1SE)
Total	0	3 (1SE, 2C)

Laboratory Surveillance (as of November 9): During November 3-9, 3 influenza 2009 A/H1N1pdm (2SE,1C) and 3 influenza B (1SE,1SW,1C) results were reported by MDCH Bureau of Laboratories. For the 2013-14 season (starting Sept. 29, 2013), MDCH has identified 15 positive influenza results:

- Influenza 2009 A/H1N1pdm: 9 (8SE, 1C)
- Influenza A/H3: 2 (2SE)
- Influenza A unsubtypeable: 1 (1SE)
- Influenza B: 3 (1SE,1SW,1C)
- Parainfluenza: 1 (1SE)

13 sentinel labs (SE,SW,C,N) reported for the week ending November 9, 2013. 4 labs (SE,C) reported sporadic influenza A activity. No labs reported flu B activity. 5 labs (SE,SW,C,N) had sporadic RSV activity. 4 labs (SE,SW,C) had sporadic parainfluenza activity. 1 lab (SE) had sporadic adenovirus activity. Three labs (SE,C) reported sporadic hMPV activity. Most testing volumes are low to moderate and gradually increasing.

Michigan Influenza Antigenic Characterization (as of November 14): For the 2013-14 season, no influenza specimens have been characterized at MDCH BOL.

Michigan Influenza Antiviral Resistance Data (as of November 14): For the 2013-14 season, 7 2009 A/H1N1pdm (7SE) and 1 A/H3 (1SE) 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 November 14): No pediatric influenza-associated influenza mortalities have been reported to MDCH for the 2013-14 season.

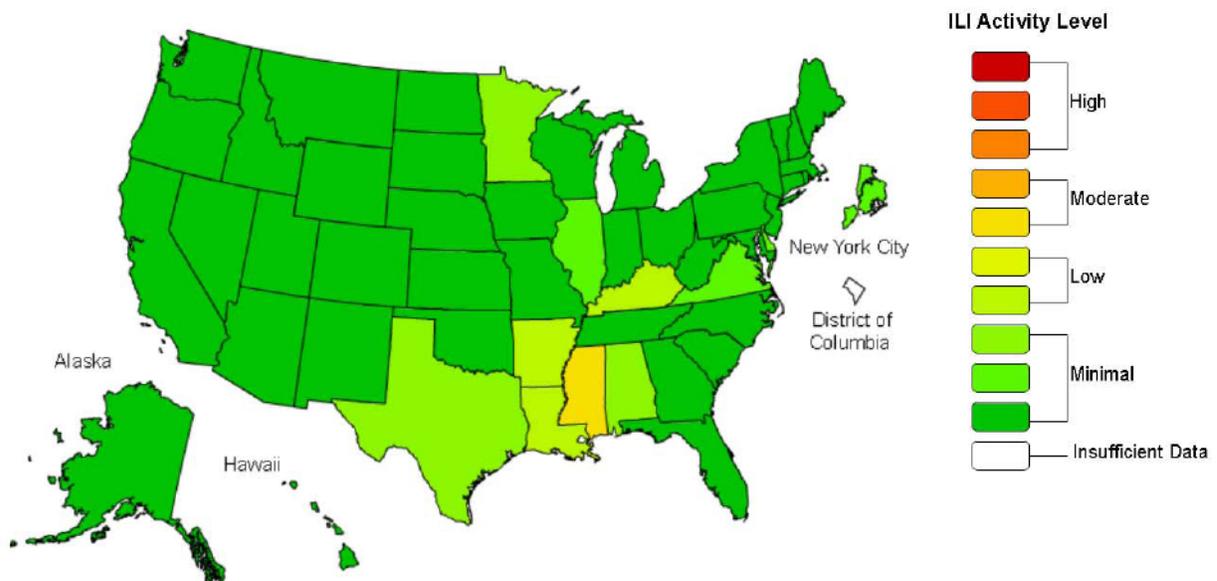
CDC requires reporting of flu-associated pediatric deaths (<18 yrs), including pediatric deaths due to an influenza-like illness with lab confirmation of influenza or any unexplained pediatric death with evidence of an infectious process. Contact MDCH immediately for proper specimen collection. The MDCH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

Influenza Congregate Settings Outbreaks (as of November 14): No respiratory outbreaks have been reported to MDCH during the 2013-14 season.

National (CDC [edited], November 8): During week 44 (October 27-November 2, 2013), influenza activity remained low in the United States. Of 4,118 specimens tested and reported by U.S. World Health Organization (WHO) and National Respiratory and Enteric Virus Surveillance System (NREVSS) collaborating laboratories during week 44, 201 (4.9%) were positive for influenza. The proportion of deaths attributed to pneumonia and influenza was below the epidemic threshold. Two influenza-associated pediatric deaths that occurred during the 2012-2013 season were reported. The proportion of outpatient visits for influenza-like illness (ILI) was 1.4%, below the national baseline of 2.0%. All 10 regions reported ILI below region-specific baseline levels. One state experienced moderate ILI activity, three states experienced low ILI activity, 46 states and New York City experienced minimal ILI activity and the District of Columbia had insufficient data. The geographic spread of influenza in two states was reported as regional; Puerto Rico and 4 states reported local influenza activity; the District of Columbia, Guam and 34 states reported sporadic influenza activity; 10 states reported no influenza activity, and the U.S. Virgin Islands did not report.

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

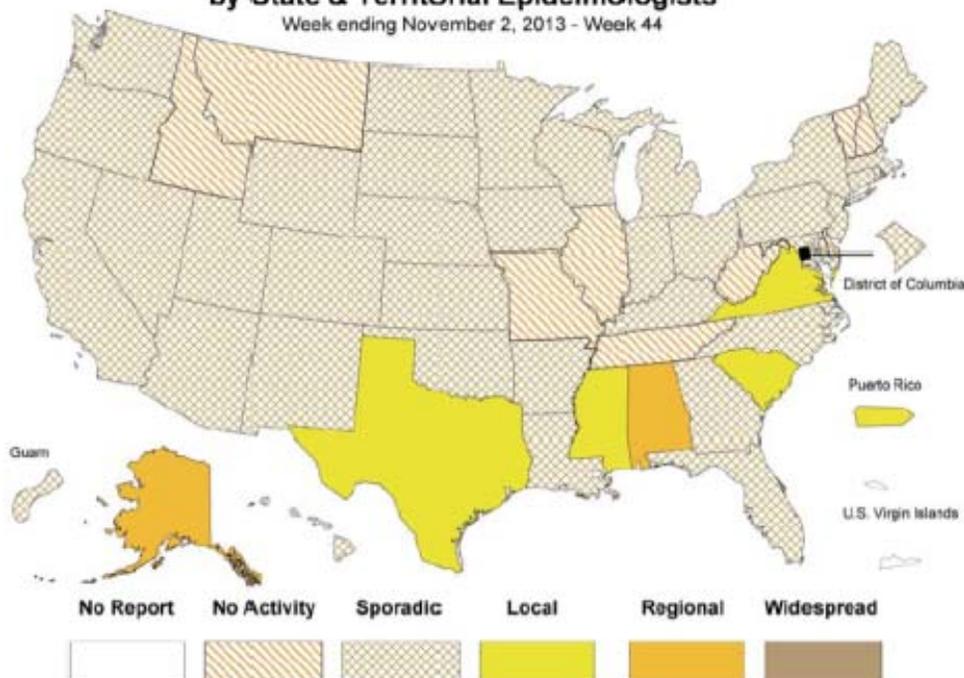
**Influenza-Like Illness (ILI) Activity Level Indicator Determined by Data Reported to ILINet
2013-14 Influenza Season Week 44 ending Nov 02, 2013**



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.

Weekly Influenza Activity Estimates Reported by State & Territorial Epidemiologists*

Week ending November 2, 2013 - Week 44



International (WHO [edited], November 11): Although in many European countries influenza-like illness activity started to increase, influenza detections in the northern hemisphere temperate zones remained low. Influenza transmission in southern Asia was low. In Hong Kong Special Administrative Region, China, and in the south of China influenza detections decreased. In South East Asia, influenza activity decreased in Thailand and Viet Nam, but increased in Cambodia and Lao People's Democratic Republic. In this area, co-circulation of influenza A(H1N1)pdm09, influenza A(H3N2) and influenza B virus was reported. In the Caribbean region of Central America and tropical South America countries, reported cases of influenza A infection remained at low levels among most Caribbean islands and Central American countries, with increased reports of influenza B in certain countries. Respiratory syncytial virus (RSV) continued to predominate in certain countries, but the RSV activity largely remained within expected seasonal levels. Influenza activity peaked in the temperate countries of South America and in South Africa in late June. Temperate South American countries reported cases of A(H1N1)pdm09 A (H3N2) and influenza B, and acute respiratory activity remained low. In Australia and New Zealand, numbers of influenza viruses detected and rates of influenza-like illness decreased. Co-circulation of influenza A(H1N1)pdm09, A(H3N2) and B viruses was reported in both countries.

The entire WHO report is available 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 Nov. 9, 2013.

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], November 8): The Ministry of Health (MoH) of the Kingdom of Cambodia wishes to advise members of the public that one new human case of avian influenza has been confirmed for the H5N1 virus. This is the 24th case this year and the 45th person to become infected with the H5N1 virus in Cambodia. The case, from Kampot province, is currently in a critical condition. Of the

45 confirmed cases, 34 were children under 14, and 27 of the 45 were female. In addition, only 12 cases out of the 24 cases this year survived.

The 24th case, a 10-year-old boy from Sdok Thlok village, To Tung commune, Dang Tong district in Kampot province, was confirmed positive for H5N1 human avian influenza on 7th November 2013 by Institute Pasteur du Cambodge. The boy developed fever on 28th October 2013. On 29th October 2013, his parents sought treatment at a local private practitioner in the village, but his condition worsened. The boy was admitted to Kantha Bopha Hospital, Phnom Penh, on 7th November 2013 with fever, cough, sore throat, a distended abdomen and dyspnea. Laboratory samples were taken on 7th November 2013 and Tamiflu administered the same day.

Investigations in Sdok Thlok village by the Ministry of Health's Rapid Response Teams (RRT) and the Ministry of Agriculture, Forestry and Fishery's Animal Health Task Force revealed that about a month before the 10-year-old boy's illness, about 30 chickens had died suddenly in his village. The boy helped carry dead chickens for his brother who was preparing a meal from them.

The Ministry of Health's RRTs and the Ministry of Agriculture, Forestry and Fishery's Animal Health Task Force are working together closely in Sdok Thlok village, in Kampot, to investigate and implement control measures. The RRTs are trying to identify the case's close contacts, any epidemiological linkage among the 24 cases and initiate preventive treatment as required. The Animal Health Task Force is investigating cases of poultry deaths in the village.

The full article is available at www.wpro.who.int/mediacentre/releases/2013/20131108/en/index.html.

International, Human (Lancet Respiratory Medicine abstract, November 14): Ref: Sung-Hsi Wei, Ji-Rong Yang, Ho-Sheng Wu, et al: Human infection with avian influenza A H6N1 virus: an epidemiological analysis. The Lancet Respiratory Medicine, early online publication, 14 Nov 2013; doi:10.1016/S2213-2600(13)70221-2

Background: Avian influenza A H6N1 virus is one of the most common viruses isolated from wild and domestic avian species, but human infection with this virus has not been previously reported. We report the clinical presentation, contact, and environmental investigations of a patient infected with this virus, and assess the origin and genetic characteristics of the isolated virus.

Methods: A 20-year-old woman with an influenza-like illness presented to a hospital with shortness of breath in May, 2013. An unsubtype influenza A virus was isolated from her throat-swab specimen and was transferred to the Taiwan Centres for Disease Control (CDC) for identification. The medical records were reviewed to assess the clinical presentation. We did a contact and environmental investigation and collected clinical specimens from the case and symptomatic contacts to test for influenza virus. The genomic sequences of the isolated virus were determined and characterised.

Findings: The unsubtype influenza A virus was identified as the H6N1 subtype, based on sequences of the genes encoding haemagglutinin and neuraminidase. The source of infection was not established. Sequence analyses showed that this human isolate was highly homologous to chicken H6N1 viruses in Taiwan and had been generated through interclade reassortment. Notably, the virus had a G228S substitution in the haemagglutinin protein that might increase its affinity for the human α 2-6 linked sialic acid receptor.

Interpretation: This is the first report of human infection with a wild avian influenza A H6N1 virus. A unique clade of H6N1 viruses with a G228S substitution of haemagglutinin have circulated persistently in poultry in Taiwan. These viruses continue to evolve and accumulate changes, increasing the potential risk of human-to-human transmission. Our report highlights the continuous need for preparedness for a pandemic of unpredictable and complex avian influenza.

The abstract is available at [www.thelancet.com/journals/lanres/article/PIIS2213-2600\(13\)70221-2/fulltext](http://www.thelancet.com/journals/lanres/article/PIIS2213-2600(13)70221-2/fulltext).

International, MERS-CoV (WHO [edited], November 10): WHO has been informed of an additional laboratory-confirmed case of infection with Middle East respiratory syndrome coronavirus (MERS-CoV) in Qatar.

The patient is a 48-year-old man with underlying medical conditions. He became ill on 25 October 2013 and was admitted to a hospital on 31 October 2013. He is currently in a critical condition. Preliminary

investigations reveal that he frequently visited animal barns. The patient did not recently travel and has had no contact with a previously laboratory-confirmed case with MERS-CoV.

Globally, from September 2012 to date, WHO has been informed of a total of 151 laboratory-confirmed cases of infection with MERS-CoV, including 64 deaths.

The full report is available online at http://www.who.int/csr/don/2013_11_10/en/index.html.

International, MERS-CoV (WHO [edited], November 11): WHO has been informed of two additional laboratory-confirmed cases of infection with Middle East respiratory syndrome coronavirus (MERS-CoV) in Saudi Arabia.

The first patient is a 72-year-old man from Riyadh with underlying medical conditions. He became ill on 23 October 2013, and has been hospitalised since 31 October 2013. The second patient is a 43-year-old man from Jeddah. He became ill on 27 October 2013 and has been hospitalised since 3 November 2013.

Globally, from September 2012 to date, WHO has been informed of a total of 153 laboratory-confirmed cases of infection with MERS-CoV, including 64 deaths.

The full report is available online at http://www.who.int/csr/don/2013_11_11_coronavirus/en/index.html.

International, Poultry (OIE [edited], November 12): Highly pathogenic avian influenza H5N1; Nepal Total outbreaks: 85; Date of start of the event: 27/08/2012 Total animals affected: Susceptible: 1416000; Cases: 43691; Deaths: 43691; Destroyed: 1372309 Epidemiological comments: Birds showed respiratory distress, nervous signs and all affected birds died. Cleaning and disinfection activities in the infected premises are completed. Intensive surveillance activities are ongoing throughout the country.

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 October 8, 2013. http://www.who.int/influenza/human_animal_interface/EN_GIP_20131008CumulativeNumberH5N1cases.pdf. Downloaded 10/8/2013. Cumulative lab-confirmed cases reported to WHO. Total cases include deaths.

Country	2003-2009		2010		2011		2012		2013		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	0	0	2	0	3	0	1	1	7	1
Cambodia	9	7	1	1	8	8	3	3	20	11	41	30
China	38	25	2	1	1	1	2	1	2	2	45	30
Djibouti	1	0	0	0	0	0	0	0	0	0	1	0
Egypt	90	27	29	13	39	15	11	5	4	3	173	63
Indonesia	162	134	9	7	12	10	9	9	2	2	194	162
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	112	57	7	2	0	0	4	2	2	1	125	62
Total	468	282	48	24	62	34	32	20	31	20	641	380