



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
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Current Influenza Activity Levels:

- **Michigan:** Local influenza activity
- **National:** During December 1-7, influenza activity continued to increase in the U.S.

Updates of Interest:

- **Michigan:** The first pediatric influenza-associated death in MI for 2013-14 is reported

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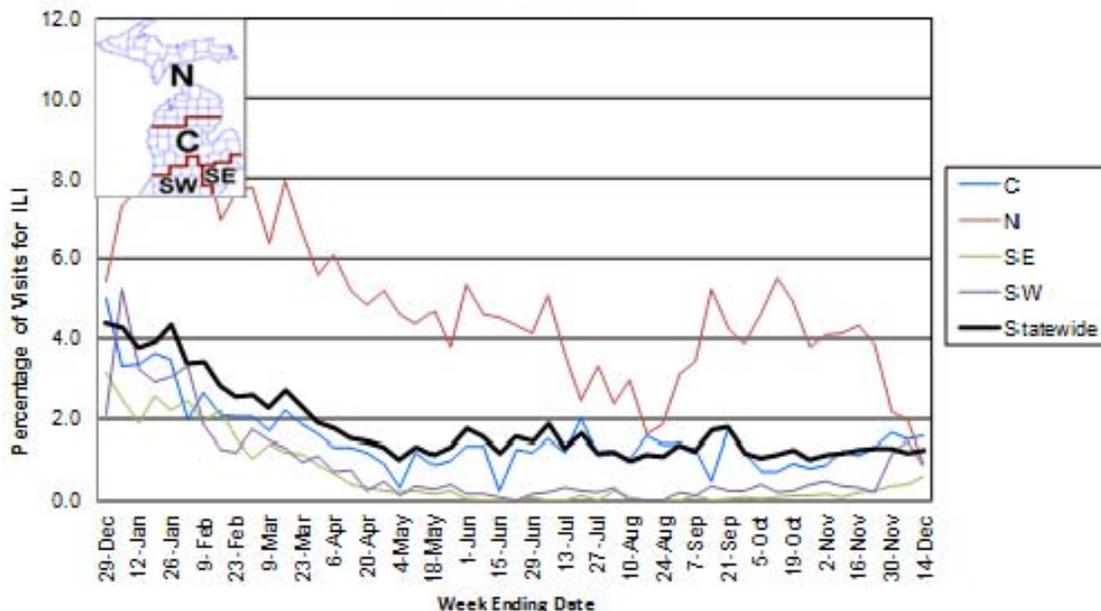
Influenza Surveillance Reports

Michigan Disease Surveillance System (as of December 19): MDSS influenza data for the week ending December 14, 2013 indicated that compared to levels from the previous week, aggregate reports decreased and individual reports moderately increased. Aggregate reports are noticeably lower than levels seen during the same time period last year, while individual reports are higher.

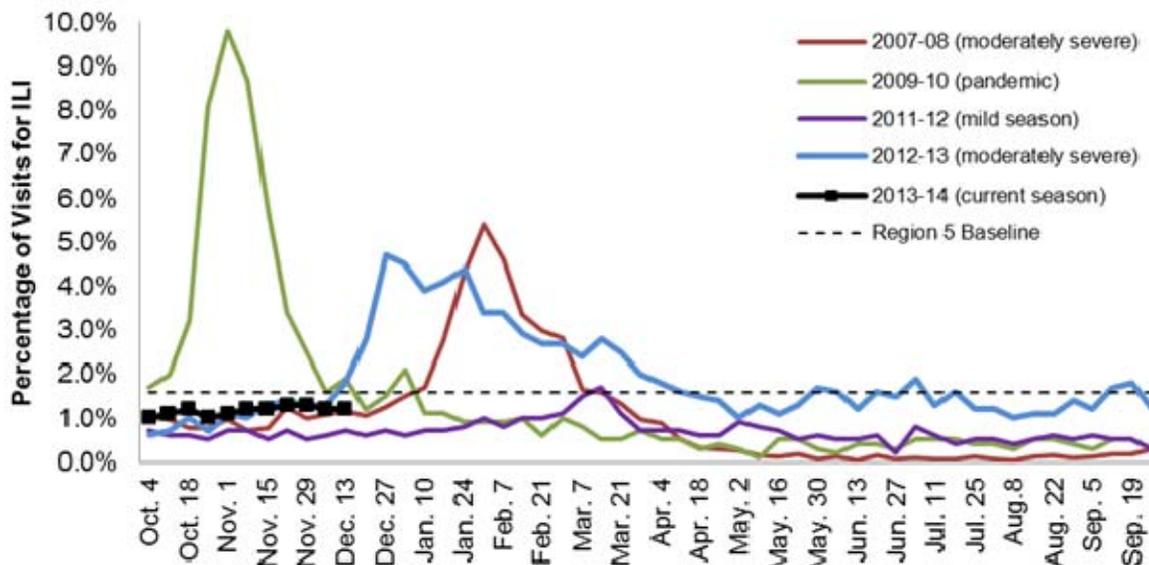
Emergency Department Surveillance (as of December 19): Emergency department visits due to constitutional complaints increased slightly during the week ending December 14, 2013, while respiratory complaints remained steady. Emergency department visits from respiratory complaints were similar to levels during the same time period last year, while constitutional complaints were slightly lower. In the past week, there were 11 constitutional alerts in the SE(4), C(1) and N(6) Influenza Surveillance Regions and 8 respiratory alerts in the SW(2), C(5) and N(1) Regions.

Sentinel Provider Surveillance (as of December 19): During the week ending December 14, 2013, the proportion of visits due to influenza-like illness (ILI) remained the same at 1.2% overall; this is below the regional baseline (1.6%). A total of 81 patient visits due to ILI were reported out of 6,587 office visits. Data were provided by 22 sentinel sites from the following regions: Central (11), North, (3), Southeast (5), and Southwest (3). ILI activity increased in two regions: C (1.6%) and SE (0.6%) and declined in two regions: N (0.9%) and SW (0.9%). 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 December 14): 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. 4 new cases (2 pediatric, 2 adult) were identified during the past week. As of December 14th, there have been 11 influenza hospitalizations (5 pediatric, 6 adult) within the catchment area.

The MDCH Influenza Sentinel Hospital Network monitors influenza hospitalizations reported voluntarily by hospitals statewide. 8 hospitals (SE,SW,C,N) reported for the week ending December 14, 2013. 1 result in a 50-64 year old from the N Region was reported for a prior week. Results are listed in the table below.

Age Group	Hospitalizations Reported During Current Week	Total Hospitalizations 2013-14 Season
0-4 years	6 (6C)	10 (1SE,9C)
5-17 years	1 (1C)	3 (3C)
18-49 years	6 (4SE,2C)	11 (7SE,4C)
50-64 years	2 (2N)	8 (4SE,2C,2N)
≥65 years	1 (1SE)	3 (3SE)
Total	16 (5SE,9C,2N)	35 (15SE,18C,2N)

Laboratory Surveillance (as of December 14): During December 8-14, 16 influenza 2009 A/H1N1pdm (3SE,4SW,4C,5N) results were reported by MDCH Bureau of Laboratories. In addition, one specimen positive for both influenza A and B (indicating LAIV recovery) was reported (1SE) and confirmed by CDC. For the 2013-14 season (starting Sept. 29, 2013), MDCH has identified 95 positive influenza results:

- Influenza 2009 A/H1N1pdm: 84 (44SE,16SW,18C,6N)
- Influenza A/H3: 6 (6SE)
- Influenza A unsubtypeable: 1 (1SE)
- Influenza B: 3 (1SE,1SW,1C)
- Influenza A and B (LAIV recovery): 1 (1SE)
- Parainfluenza: 2 (1SE,1SW)

12 sentinel labs (SE,SW,C,N) reported for the week ending December 14, 2013. 9 labs (SE,SW,C) reported increasing influenza A activity. 3 labs (SE,C) reported sporadic influenza B activity. 8 labs (SE,SW,C,N) had low or increasing RSV activity. 5 labs (SE,SW,C) had sporadic parainfluenza activity. 3 labs (SE,SW,C) reported sporadic adenovirus activity. 2 labs (SE,SW) reported sporadic hMPV activity. Testing volumes continue to increase, with most sites at moderate levels.

Michigan Influenza Antigenic Characterization (as of December 19): For the 2013-14 season, no influenza specimens have been characterized at MDCH BOL.

Michigan Influenza Antiviral Resistance Data (as of December 19): For the 2013-14 season, 14 2009 A/H1N1pdm (10SE,2SW,2C) and 3 A/H3 (3SE) 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>.

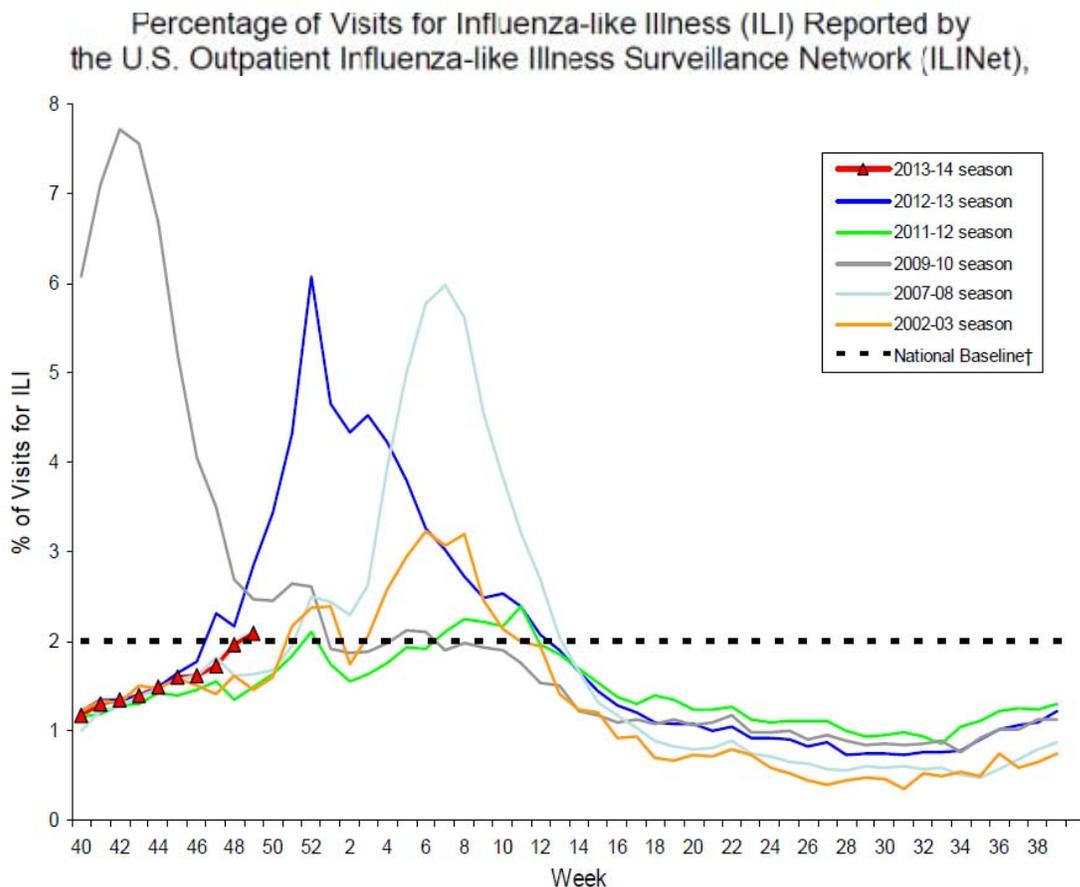
Influenza-associated Pediatric Mortality (as of December 19): During the past week, one pediatric influenza-associated influenza death, confirmed to be 2009 influenza A/H1N1, was reported in an unvaccinated infant from the C Region. One pediatric influenza-associated influenza mortality (1C) has been 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 December 19): One respiratory outbreak was reported from a special education facility in the C Region; an investigation is underway. 1 respiratory outbreak (1C) has been reported to MDCH during the 2013-14 season.

National (CDC [edited], December 13): During week 49 (December 1-7, 2013), influenza activity continued to increase in the United States. Of 6,219 specimens tested and reported by U.S. World Health Organization (WHO) and National Respiratory and Enteric Virus Surveillance System (NREVSS) collaborating laboratories during week 49, 830 (13.3%) 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 cumulative rate for the season of 2.0 laboratory confirmed influenza-associated hospitalizations per 100,000 population was reported. The proportion of outpatient visits for influenza-like illness (ILI) was 2.1%, above the national baseline of 2.0%. Three regions reported ILI above region-specific baseline levels. Four states experienced high ILI activity, five states and New York City experienced low ILI activity, 41 states experienced minimal ILI activity and the District of Columbia had insufficient data. The geographic spread of influenza in 14 states was reported as regional; 18 states reported local influenza activity; the District of Columbia, Guam, Puerto Rico, and 16 states reported sporadic influenza activity; the U.S. Virgin Islands and two states reported no influenza activity.

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



MDCH reported LOCAL INFLUENZA ACTIVITY to CDC for the week ending December 14, 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.

National, Research (Clinical Infectious Disease abstract, December 19): Medically-Attended RSV Infections in Adults ≥ 50 Years Old: Clinical Characteristics and Outcomes. Sundaram ME, Meece JK, Sifakis F, Gasser RA Jr, Belongia EA. Clin Infect Dis. 2013 Nov 21.

Background. Few studies have examined respiratory syncytial virus (RSV) infections in adults. We assessed the characteristics and outcomes of RSV relative to other viral infections.

Methods. Patients ≥ 50 years old with acute respiratory illness were recruited for studies of influenza vaccine effectiveness from 2004 through 2010. Nasopharyngeal swabs from enrollees were analyzed for the presence of RSV and other respiratory viruses by multiplex reverse transcriptase polymerase chain reaction (RT-PCR). Clinical data were obtained from interview and medical records.

Results. There were 2,225 samples tested across all seasons. The mean (\pm SD) age was 64.2 (\pm 10.7) years; the mean (\pm SD) interval from illness onset to sample collection was 4 (\pm 2.2) days. One or more viruses were detected in 1,202 (54%) of participants. In a multivariable logistic regression model, RSV was associated with ages 65-79 years (vs. 50-64 years), symptoms of cough, nasal congestion and wheezing, and longer interval from illness onset to clinical encounter. RSV was not associated with the presence of chronic obstructive pulmonary disease or congestive heart failure in univariate analyses. Hospital admission within 30 days after illness onset was less common among patients with RSV compared to those with influenza (unadjusted OR=0.54, 95% CI=0.29–1.01, $p=0.06$).

Conclusions. RSV is a common cause of acute respiratory illness in adults ≥ 50 years old; the risk of infection increases with age. Delays in health care seeking and reduced risk of hospital admission in patients with RSV suggest a milder course of illness relative to influenza.

The abstract is available at <http://cid.oxfordjournals.org/content/early/2013/11/20/cid.cit767.abstract>.

International, Human (WHO [edited], December 10): Influenza at the human-animal interface: Summary and assessment as of 10 December 2013

Human infection with avian influenza A(H5N1) viruses:

From 2003 through 10 December 2013, 648 laboratory-confirmed human cases with avian influenza A(H5N1) virus infection have been officially reported to WHO from 15 countries. Of these cases, 384 died. Since the last WHO Influenza at the Human Animal Interface update on 7 October 2013, seven new laboratory-confirmed human cases of influenza A(H5N1) virus infection were reported to WHO from Cambodia (6) and Indonesia (1).

In Cambodia, the reported incidence of human cases has increased in 2013 (26 cases in 2013 compared with 21 cases from 2005 through December 2012). This might be due to improvements in surveillance and physician awareness or to a potential increased circulation of the virus in poultry. The case fatality rate among reported cases, however, has decreased (54% in 2013 compared with 90% over all previous years).

Before 2013, H5N1 viruses from clade 1.1 predominated in Cambodia. Analysis of isolates from human cases and birds from the beginning of 2013 revealed the emergence of a new H5N1 genotype resulting from the reassortment of clade 1.1 and clade 2.3.2.1 viruses. The link between the emergence of this reassortant virus and the increase in human cases observed in 2013 is yet to be determined.

All seven human cases reported in this summary are considered to be sporadic, with no evidence of community-level transmission. As influenza A(H5N1) virus is thought to be circulating widely in poultry in

Cambodia and Indonesia, additional sporadic human cases or small clusters might be expected in these countries in the future.

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. However, 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.

Avian influenza A(H7N9) in China:

Since the last update of 7 October 2013, China has reported six new cases of human infection with avian influenza A(H7N9) virus, from Zhejiang (5) and Guangdong (1) provinces, with onset dates between 8 October and 29 November. In addition, the Centre for Health Protection, China, Hong Kong SAR has reported two human cases, one with an onset date of 21 November 2013 and the other with onset at the beginning of December. Both cases had been in Guangdong province in China in the week before clinical onset. Most patients presented with pneumonia.

Most human A(H7N9) cases have reported contact with poultry or live bird markets. Knowledge about the main virus reservoirs and the extent and distribution of the virus in animals remains limited and, because this virus causes only subclinical infections in poultry, it is possible that the virus continues to circulate in China and perhaps in neighbouring countries without being detected. As such, reports of additional human cases and infections in animals would not be unexpected, especially with onset of winter in the Northern Hemisphere.

Although five small family clusters have been reported (including one among recent reported cases in Zhejiang province), evidence does not support sustained human-to-human transmission of this virus.

Overall public health risk assessment for avian influenza A(H7N9) virus: Sporadic human cases and small clusters would not be unexpected in previously affected and possibly neighbouring areas/countries of China. The current likelihood of community-level spread of this virus is considered to be low.

The full report is available online at www.who.int/influenza/human_animal_interface/Influenza_Summary_IRA_HA_interface_16December13.pdf.

International, Human (WHO [edited], December 17): On 15 and 16 December 2013, the National Health and Family Planning Commission, China notified WHO of two new laboratory-confirmed cases of human infection with avian influenza A(H7N9) virus.

The first patient is a 39-year-old man from Guangdong Province. He became ill on 6 December 2013 and was admitted to hospital on 11 December 2013. He is currently in critical condition.

The second patient is a 65-year-old woman from Guangdong Province. She was exposed to live poultry and became ill on 11 December 2013 and was admitted to hospital on 15 December 2013. She is currently in critical condition.

The full article is available online at http://www.who.int/csr/don/2013_12_17influenza/en/index.html.

International, Human (Hong Kong Centre for Health Protection press release [edited], December 17): The Centre for Health Protection (CHP) of the Department of Health (DH) today (December 17) received notification from the National Health and Family Planning Commission (NHFPC) of a human fatal case of avian influenza A(H10N8) affecting a woman aged 73 in Jiangxi.

The immunocompromised patient with underlying illnesses was admitted to a local hospital on November 30 for treatment. Her clinical diagnosis was severe pneumonia and she passed away on December 6.

According to the relevant authority, the patient had visited a local live poultry market. Her home and close contacts, who are under medical surveillance, have remained asymptomatic and no abnormalities have been found so far.

"Influenza A(H10) is currently not a local statutorily notifiable infectious disease but the Public Health Laboratory Services Branch of the CHP is capable of detecting this virus by culture or genetic testing. No confirmed human cases have been recorded so far in Hong Kong," a spokesman for the CHP said.

The CHP will follow-up with the World Health Organization (WHO) and the Mainland health authorities to obtain more information on the case.

The full press release is available online at <http://www.chp.gov.hk/en/content/599/32608.html>.

International, MERS-CoV (WHO [edited], December 17): WHO has been informed of an additional two laboratory-confirmed cases of infection with Middle East respiratory syndrome coronavirus (MERS-CoV) in Saudi Arabia.

The first case is a 51 year-old female from Saudi Arabia, living in Jawf province with onset of symptoms on 20 November 2013. She has underlying chronic disease and was transferred to Riyadh for treatment in an intensive care unit. She had no reported contact with animals. The epidemiological investigation is ongoing. The second case is a 26 year-old female who is a non-Saudi healthcare worker in Riyadh. She is asymptomatic. She had reported contact with a 37 year-old male laboratory confirmed case that was reported to WHO on 21 November 2013.

Globally, from September 2012 to date, WHO has been informed of a total of 165 laboratory-confirmed cases of infection with MERS-CoV, including 71 deaths.

Based on the current situation and available information, WHO encourages all Member States to continue their surveillance for severe acute respiratory infections and to carefully review any unusual patterns.

The full article is available online at http://www.who.int/csr/don/2013_12_17/en/index.html.

International, Poultry (OIE [edited], December 12): Low pathogenic avian influenza H5N3; Netherlands Outbreak 1: Scheemda, GRONINGEN; Date of start of outbreak: 09/12/2013; Epidemiological unit: Farm Affected animals: Birds; Susceptible: 11698; Cases: 20; Deaths: 0; Destroyed: 11698

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 October 8, 2013. http://www.who.int/influenza/human_animal_interface/EN_GIP_20131008_CumulativeNumberH5N1cases.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