



MI FluFocus

Influenza Surveillance and Avian Influenza Update

Bureau of Epidemiology
Bureau of Laboratories



Editor: Susan Vagasky, DVM
Surveillance and Infectious Disease Epidemiology
VagaskyS@Michigan.gov

January 15, 2009
Vol. 6; No. 2

New updates in this issue:

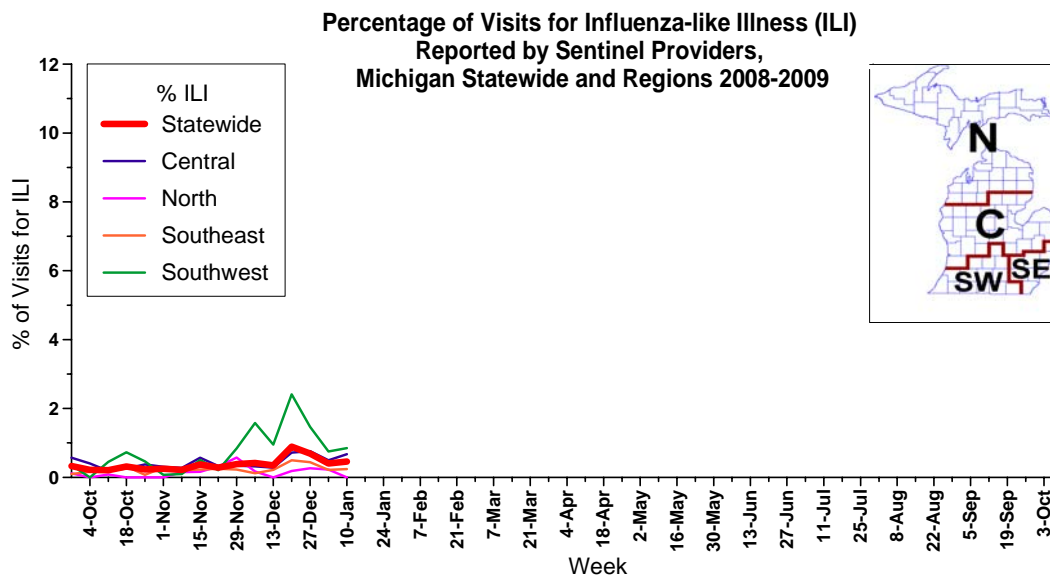
- **Michigan Surveillance:** MDCH BOL reports increasing number of positive influenza specimens.
- **National Surveillance:** Influenza activity remains steady; 15 states report regional or local activity.
- **Avian Influenza:** Egypt reports a human case of H5N1 avian influenza.

Michigan Disease Surveillance System: The week ending January 10 saw both individual influenza disease reports and aggregate flu-like numbers increase slightly compared to the previous week. Both numbers are slightly lower than levels seen at this time last year.

Emergency Department Surveillance: Emergency department visits from both constitutional and respiratory complaints decreased slightly. These numbers are slightly lower than those seen this time last year. Four constitutional alerts in the C(1), N(2) and SE(1) Influenza Surveillance Regions and five respiratory alerts in the C(2), N(2) and SW(1) Influenza Surveillance Regions were generated last week.

Over-the-Counter Product Surveillance: Overall, OTC product sales were mixed last week. Children's electrolytes and thermometer sales saw a slight increase over last week, while the remainder of the indicators saw a slight drop in sales. Indicator levels are comparable to those seen at this time last year.

Sentinel Provider Surveillance (as of January 15): During the week ending January 10, 2009, the proportion of visits due to influenza-like illness (ILI) remained at a low level, 0.5% overall; 35 patient visits due to ILI were reported out of 7,706 office visits. This level of ILI activity is below that reported at this time during prior years' surveillance. Activity remains low in all four surveillance regions: Central (0.7%), North (0.7%), Southeast (0.2%), and Southwest (0.8%). Twenty-nine sentinels provided data for this report. Note that these rates may change as additional reports are received.



As part of pandemic influenza preparedness, CDC and MDCH highly encourage year-round participation from all sentinel providers. New practices are encouraged to join the sentinel surveillance program today! Contact Rachel Potter at 517-335-9710 or potterr1@michigan.gov for more information.

Laboratory Surveillance (as of January 15): During the past week, 11 new influenza A isolates and 2 influenza B isolates have been identified at the MDCH Bureau of Laboratories (BOL). For the 2008-2009 influenza season, MDCH BOL has identified 31 influenza isolates (followed by Influenza Surveillance Regions of origin):

- 24 A/H1N1 (12SE, 11SW, 1N)
- 1 A/H3N2 (C)
- 2 A subtype pending (1C, 1N)
- 4 B (1SE, 3SW). 1 isolate is B/Florida/4/2006-like (SE); 2 are B/Malaysia/2506/2004-like (2SW); 1 is pending characterization (SW).

During the past week, 10 out of 14 sentinel laboratories reported influenza positive tests. Increasing levels of influenza A were reported by 5 labs, including 2 labs reporting their first positives. Influenza B activity continues to be low; however, 2 labs reported their first influenza B positives during the past week. Overall, activity is starting to steadily increase but is still below levels reported at this time last year. RSV activity continues to increase at a moderate rate.

***As a reminder, the positive predictive value of influenza rapid tests decreases during times of low influenza prevalence. MDCH suggests that during periods of low influenza activity in your community, all positive rapid tests results be confirmed by sending in a specimen for viral culture; this can be arranged through your local health department.

Michigan Antigenic Characterization (as of January 15): At this time, three influenza A/H1N1 isolates have been antigenically characterized by the CDC; results indicate all isolates are A/Brisbane/59/2007-like, which matches the influenza A/H1N1 component of this season's Northern Hemisphere vaccine. The one influenza B isolate has been characterized as B/Florida/4/2006-like, which matches the influenza B component of this season's Northern Hemisphere influenza vaccine.

Michigan Antiviral Resistance Data (as of January 15): Three influenza A/H1N1 viruses from the MDCH Bureau of Laboratories have been tested for antiviral resistance at CDC for the 2008-2009 season. All three viruses were resistant to oseltamivir (Tamiflu®) and sensitive to zanamivir, amantadine and rimantadine. These viruses were collected in the SE(2) and SW(1) Influenza Surveillance Regions.

It is difficult to draw any conclusions about antiviral resistance in Michigan influenza viruses at this time, as influenza activity has been low and there have been few positive specimens on which to perform additional testing. Antiviral resistance testing often takes several weeks to complete, and thus cannot be used to guide treatment of individual patients. However, CDC has made interim recommendations regarding the use of antiviral medications for the treatment of influenza and for prophylaxis. This guidance is available at <http://www2a.cdc.gov/HAN/ArchiveSys/ViewMsgV.asp?AlertNum=00279>.

Influenza-Associated Pediatric Mortality (as of January 15): No influenza-associated pediatric mortalities have been reported to MDCH for the 2008-2009 influenza season.

***The CDC has asked all states to collect information on any pediatric death associated with influenza infection. This includes not only any death in a child (<18 years) resulting from a compatible illness confirmed to be influenza by an appropriate diagnostic test, but also any unexplained death with evidence of an infectious process in a child. Please immediately call MDCH to ensure that proper clinical specimens are obtained. View the complete MDCH protocol online at http://www.michigan.gov/documents/mdch/ME_pediatric_influenza_guidance_v2_214270_7.pdf.

Congregate Settings Outbreaks (as of January 15): No outbreaks were reported to MDCH in the past week. One congregated setting outbreak due to influenza A has been reported to MDCH for the 2008-2009 influenza season; confirmatory testing for the one case associated with this outbreak was negative at MDCH BOL [Ed. note: the patient received oseltamivir before the specimen was collected].

National (CDC press release [edited], January 9): On December 19, 2008, CDC issued interim guidance for health care professionals on the use of influenza antiviral medications this flu season. The guidance was issued in response to early data from a limited number of states indicating that a high proportion of influenza A (H1N1) viruses are resistant to the influenza antiviral medication oseltamivir (Tamiflu®). Worldwide, the proportion of H1N1 viruses that are resistant to oseltamivir has been increasing so this development is not surprising.

Recent media reports may have led some to believe that these developments mean physicians are without influenza treatment options for the 2008-2009 flu season.

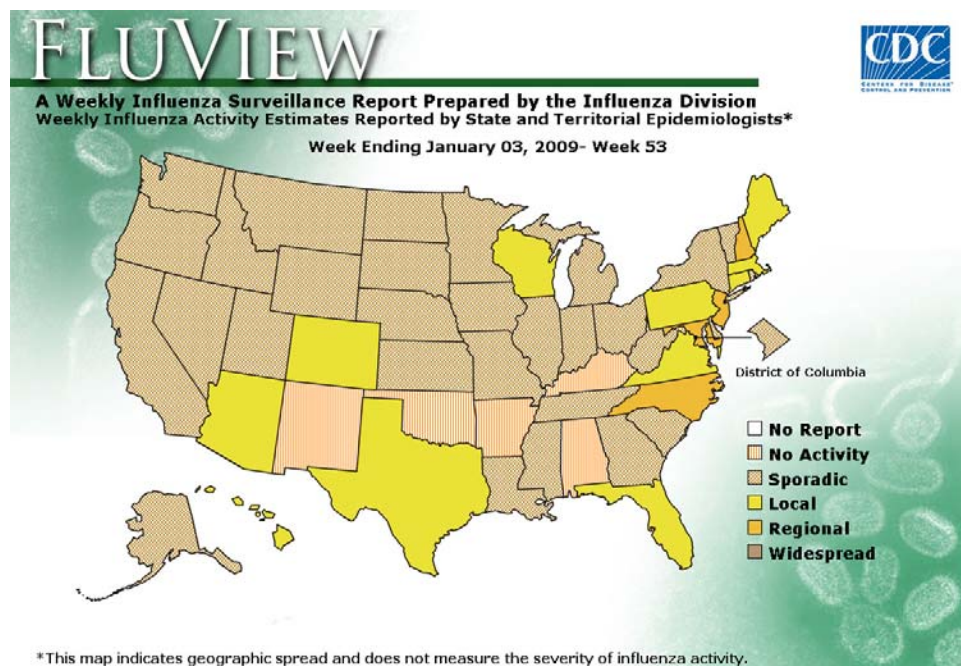
At this time, it's not possible to predict how common H1N1 viruses will be during the rest of this flu season, as there are many different flu viruses and every influenza season is different. The current samples studied come from a handful of states, and may not be indicative of how the rest of the season will progress or what viruses will circulate in other states. However the circulation of oseltamivir-resistant viruses does have treatment implications for health care professionals. CDC is continuing to monitor this situation very closely, but has issued interim guidance for health care professionals to guide their treatment decisions in the current situation.

In fact, the interim CDC guidance provides advice for clinicians on how to treat patients with influenza antiviral medications this season. Clinicians can use influenza test results and information, if available, about which viruses are circulating, to help decide which antiviral(s) should be used. If H1N1 viruses are circulating in the community, or it's not clear which viruses are circulating, health care providers are recommended to use an alternative antiviral, zanamivir (Relenza®), or to use combination therapy of oseltamivir and rimantadine. Use of zanamivir or dual therapy with oseltamivir and rimantadine would provide effective treatment against all circulating influenza viruses. In some instances, oseltamivir alone can still be used, such as when influenza B is diagnosed, or H1N1 viruses are not circulating.

It is important to remember that CDC recommends annual influenza vaccination as the first and best step in preventing the flu. It is not too late to get vaccinated and this year's influenza vaccine is expected to be effective against currently circulating oseltamivir-resistant influenza A (H1N1) viruses.

[Ed. Note: For the entire press release, visit <http://www.cdc.gov/media/pressrel/2009/s090109.htm>]

National (CDC [edited], January 9): During week 53 (December 28, 2008 – January 3, 2009), influenza activity in the United States remained at approximately the same level as in the previous week. Seventy-nine (3.2%) specimens tested by U.S. World Health Organization (WHO) and National Respiratory and Enteric Virus Surveillance System (NREVSS) collaborating laboratories and reported to CDC/Influenza Division were positive for influenza. The proportion of deaths attributed to pneumonia and influenza (P&I) was below the epidemic threshold. The proportion of outpatient visits for influenza-like illness (ILI) was below national and region-specific baseline levels. Four states reported regional activity; 11 states reported local influenza activity; the District of Columbia and 30 states reported sporadic influenza activity; and five states reported no influenza activity.



Since October 1, 2008, 88 influenza A (H1N1), 14 influenza A (H3N2), and 40 influenza B viruses from 25 states have been tested for resistance to the neuraminidase inhibitors (oseltamivir and zanamivir). Eighty-eight influenza A (H1N1) and 14 influenza A (H3N2) viruses from 23 states have been tested for resistance to the adamantanes (amantadine and rimantadine). The results of antiviral resistance testing performed on these viruses are summarized in the table below.

	Isolates tested (n)	Resistant Viruses, Number (%)		Isolates tested (n)	Resistant Viruses, Number (%)
		Oseltamivir	Zanamivir		
Influenza A (H1N1)	88	86 (98%)	0 (0)	88	0 (0%)
Influenza A (H3N2)	14	0 (0)	0 (0)	14	14 (100%)
Influenza B	40	0 (0)	0 (0)	N/A*	N/A*

*The adamantanes (amantadine and rimantadine) are not effective against influenza B viruses.

To access the entire CDC weekly surveillance report throughout the influenza season, visit <http://www.cdc.gov/flu/weekly/fluactivity.htm>

International (WHO, January 7): During the weeks 51-52, the overall level of influenza activity in the world began to increase in some countries in Europe. Ireland, Portugal and the United Kingdom of Great Britain and Northern Ireland reported widespread activity with influenza-like illness (ILI) above threshold levels. France also reported increased activity while regional activity was reported in the Netherlands, Spain and local activity in Italy. Activity in many other countries remained low. The majority of viruses identified this season have been influenza A (H3N2).

Ireland: Widespread influenza A activity has been reported.

Italy: Three influenza A H3N2 influenza isolates were reported during week 52.

Netherlands: In week 52 a substantial proportion of specimens from sentinel ILI patients contained influenza virus. To date all influenza viruses detected in specimens from sentinel ILI patients were A(H3N2).

Portugal: Widespread influenza A (H3N2) activity was reported.

Spain: Regional activity was reported. Influenza A (H3N2) viruses were detected.

United Kingdom of Great Britain and Northern Ireland: Influenza activity continued to be widespread across the country with GP consultation rates above the threshold levels in England and Scotland in week 52. The majority of the specimens have been positive for influenza A (H3N2), with low numbers of H1N1 and B detected.

Sporadic influenza activity was observed in Belgium (A), Cameroon (A, B), Canada (A,B), China (H1, H3, B), China Hong Kong Special Administrative Region (H1,H3,B), Finland (A,B), Germany (H1,H3, B), Greece (A) , Iran (H3), Israel (A;B), Japan (H1,H3, B), Latvia (A) , Luxembourg (A), Morocco (H1,B), Netherlands (H3), Norway (H1,H3,B), Russian Federation (H1,H3,B), Slovenia (H1,H3), Switzerland (H3), Tunisia (H1,B) and the United States of America (H1,H3,B).

Croatia, Czech Republic, Estonia, Greece, Lithuania, Malta, Poland, Romania and Serbia reported no influenza activity.

MDCH reported **SPORADIC INFLUENZA ACTIVITY** to the CDC for the week ending January 10, 2009.

For stakeholders interested in additional information regarding influenza vaccination and education, the MDCH publication *Michigan FluBytes* is available online at http://www.michigan.gov/mdch/0,1607,7-132-2940_2955_22779_40563-125027--,00.html. *FluBytes* is published weekly during the influenza season.

End of Seasonal Report

Avian Influenza Activity

WHO Pandemic Phase: Phase 3 - Human infection(s) with a new subtype, but no human-to-human spread or rare instances of spread to a close contact.

International, Human (WHO, January 14): The Ministry of Health and Population of Egypt has announced a new human case of avian influenza A(H5N1) virus infection. The case is a 21-months old female from 6th October Governorate, Kerdasa District whose symptoms began on 9 January 2009.

She was initially hospitalized on 10 January and is currently in a stable condition. Infection with the H5N1 avian influenza virus was diagnosed by PCR at the Egyptian Central Public Health Laboratory and subsequently confirmed by the US Naval Medical Research Unit No. 3 (NAMRU-3) laboratories.

Investigations into the source of her infection indicate a recent history of contact with sick and dead poultry.

Of the 52 cases confirmed to date in Egypt, 23 have been fatal.

International, Poultry (Sindh Today [edited], January 7): A fresh outbreak of bird flu was reported in Darjeeling Wednesday [7 Jan 2009], prompting the authorities to restart culling operations, an official said.

"We have started culling operations at Rangli Ranglikot area of Darjeeling. This time, a total of 7000 poultry will be culled," district magistrate Surendra Gupta told IANS over the telephone.

Gupta said the blood samples of dead poultry from the area sent to the High Security Disease Diagnostic Laboratory in Bhopal had tested positive for avian flu.

"We got the reports Wednesday [7 Jan 2009] that confirmed that the dead birds had H5N1 virus," Gupta said.

About 31,000 poultry have already been culled at Matigara in Siliguri subdivision and Pubang in Takdah of Darjeeling sub-division of the same district after avian flu was confirmed in the areas Saturday [3 Jan 2009].

The development came 18 days after bird flu struck Malda district in the state.

International, Poultry (Australia Network News, January 13): Vietnamese authorities have found the H5N1 bird flu virus in a batch of chickens smuggled over the border from China.

An official in the border province where the chickens were found did not say how many had been brought in illegally.

But state media says eight out of 16 samples taken from the birds carried the virus.

The Lang Son Provincial Animal Health Department says the samples were taken from chickens smuggled in from China that were confiscated by customs.

Officials say bird flu has been found in two northern provinces of Vietnam, Thanh Hoa and Thai Nguyen.

Michigan Wild Bird Surveillance (USDA, as of January 15): For the 2008 testing season, 2166 Michigan samples have been taken so far, comprised of 327 live birds, 1282 hunter-killed birds, 32 morbidity or mortality samples and 525 environmental samples.

H5N1 subtype H5N1 has not been recovered from any Michigan samples tested to date, or from the 75,105 birds or environmental samples tested nationwide for the 2008 testing season, which will run from April 1, 2008 - March 31, 2009. For more information, visit the National HPAI Early Detection Data System website at <http://wildlifedisease.nbio.gov/ai/>.

To learn about avian influenza surveillance in Michigan wild birds or to report dead waterfowl, go to Michigan's Emerging Disease website at <http://www.michigan.gov/emergingdiseases>.

Please contact Susan Vagasky at VagaskyS@Michigan.gov with any questions regarding this newsletter or to be added to the weekly electronic mailing list.

Contributors

MDCH Bureau of Epidemiology - Sally Bidol, MPH; Edward Hartwick, MS; Rachel Potter, DVM, MS

MDCH Bureau of Laboratories – Patricia Clark, MPH

Table 1. H5N1 Influenza in Poultry (Outbreaks up to January 7, 2008)

(Source: http://www.oie.int/downld/AVIAN%20INFLUENZA/A_AI-Asia.htm Downloaded 1/8/08)

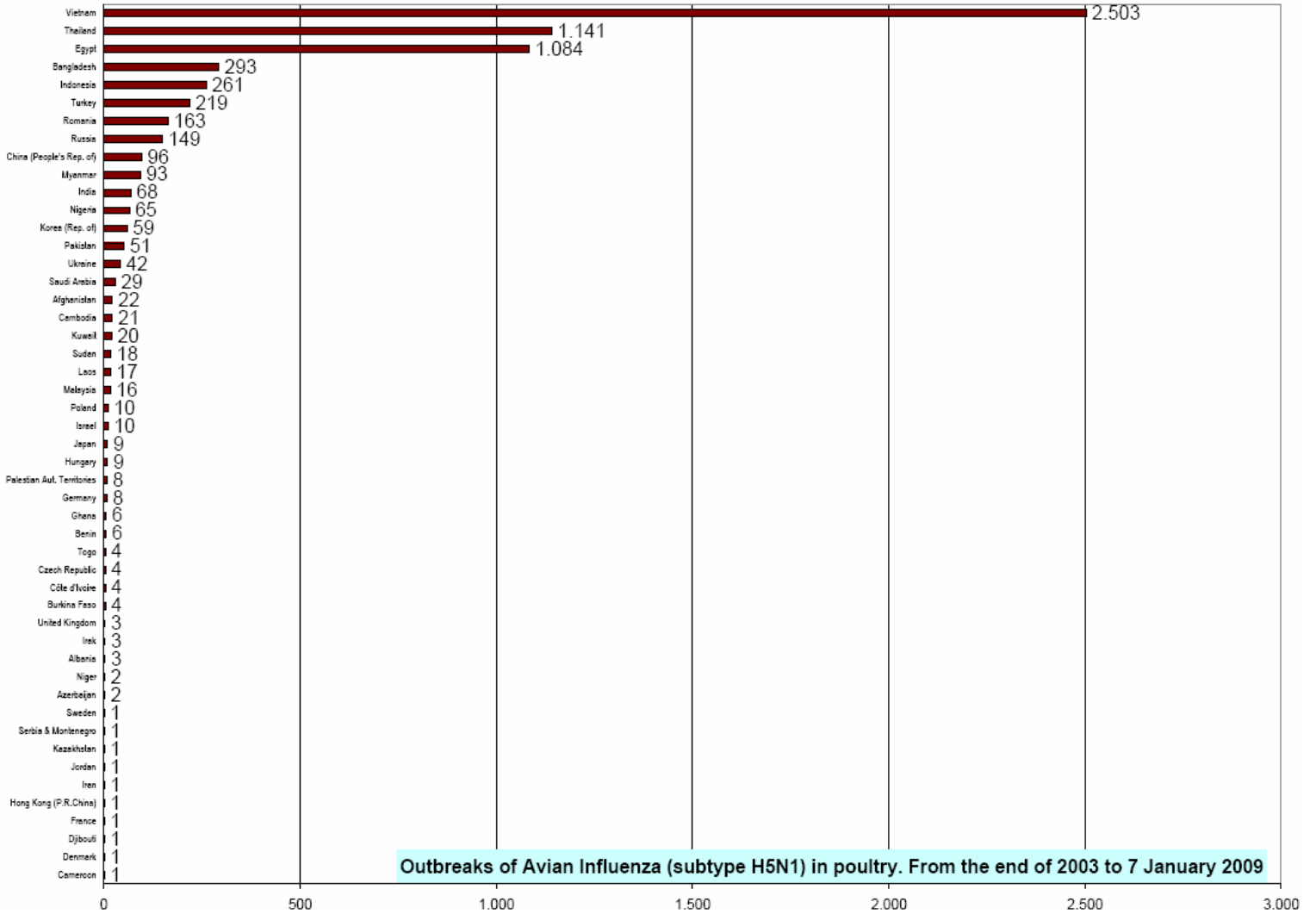


Table 2. H5N1 Influenza in Humans (Cases up to January 14, 2008)

(http://www.who.int/csr/disease/avian_influenza/country/cases_table_2009_01_14/en/index.html Downloaded 1/14/2009)

Cumulative number of lab-confirmed human cases reported to WHO. Total number of cases includes deaths.

Country	2003		2004		2005		2006		2007		2008		2009		Total	
	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths
Azerbaijan	0	0	0	0	0	0	8	5	0	0	0	0	0	0	8	5
Bangladesh	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
Cambodia	0	0	0	0	4	4	2	2	1	1	1	0	0	0	8	7
China	1	1	0	0	8	5	13	8	5	3	4	4	0	0	31	21
Djibouti	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
Egypt	0	0	0	0	0	0	18	10	25	9	8	4	1	0	52	23
Indonesia	0	0	0	0	20	13	55	45	42	37	22	18	0	0	139	113
Iraq	0	0	0	0	0	0	3	2	0	0	0	0	0	0	3	2
Lao People's Democratic Republic	0	0	0	0	0	0	0	0	2	2	0	0	0	0	2	2
Myanmar	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0
Nigeria	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1
Pakistan	0	0	0	0	0	0	0	0	3	1	0	0	0	0	3	1
Thailand	0	0	17	12	5	2	3	3	0	0	0	0	0	0	25	17
Turkey	0	0	0	0	0	0	12	4	0	0	0	0	0	0	12	4
Viet Nam	3	3	29	20	61	19	0	0	8	5	6	5	0	0	107	52
Total	4	4	46	32	98	43	115	79	88	59	42	31	1	0	394	248